

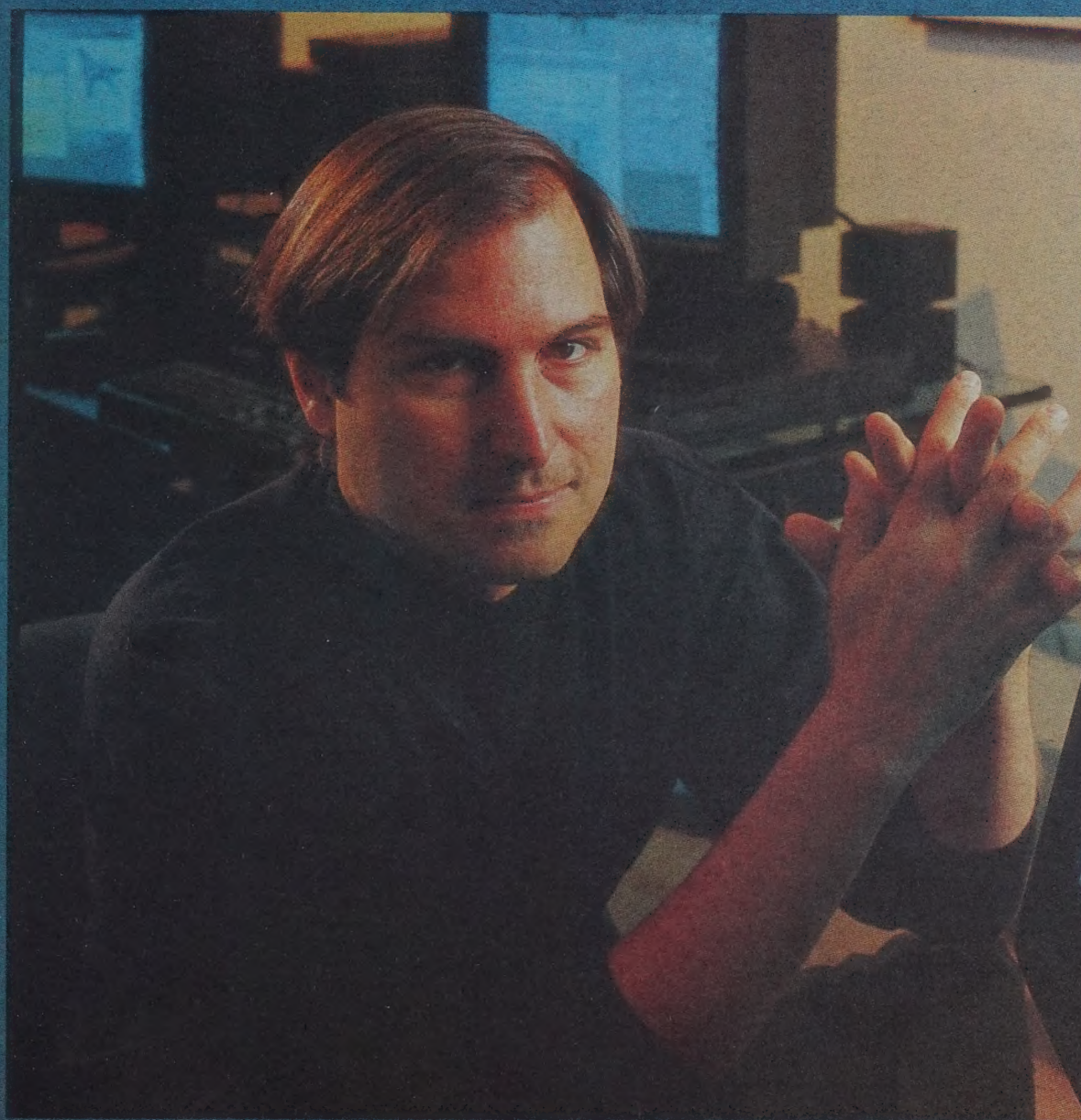
Dvorak On The Meaning
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Southern California's Computer Magazine

Feb. 3, 1992 • 92

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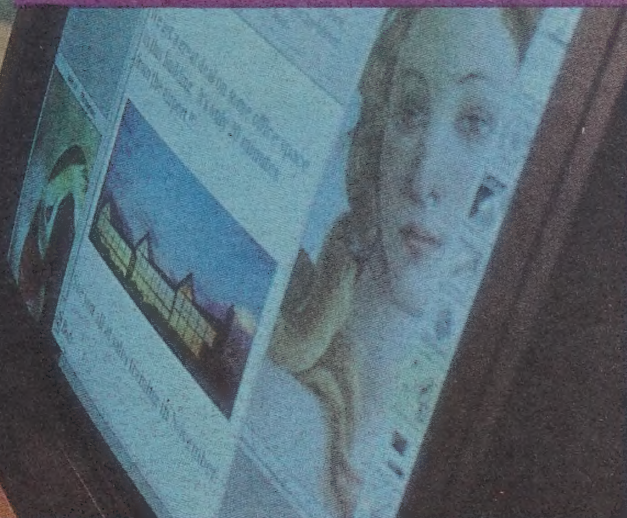
MICROTIMES



NeXT Sells The Dream—To MIS

The MicroTimes Interview
With Steve Jobs, Part 1
By John Perry Barlow

"We saw IBM walk in the front door of corporate America and not pay any attention to the individuals, and gradually over time grab the dominant share of individual use. So our path, for good or bad, is going to be more like IBM's." Story starts on page 47



Workstations: Mac Meets Iris

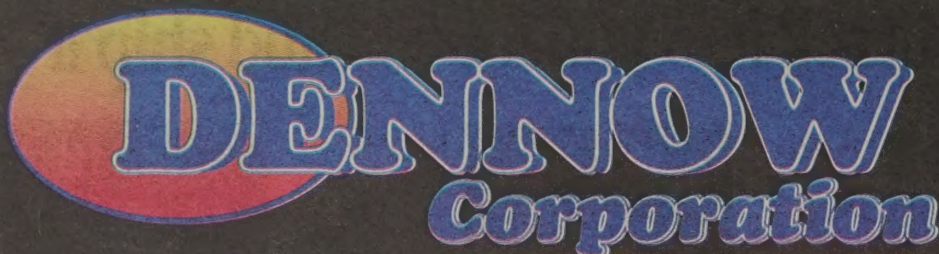
"With the advent of Apple's QuickTime, there will be a great deal of motion traffic from Mac to SGI. Two new packages, one for Silicon Graphics Iris machines and one for Macintosh, address the need for quality text in multimedia presentations." Story starts on page 100

Utilities And The Beginning User

"Learning how to use utilities is one of the ways beginners gain confidence and grow into Power Users. The least reliable component of any computer system is generally the user, and a good utility program also offers some insurance against inevitable human errors." Story starts on page 64

Mac PowerBook 170

"This machine is a triumph of design, offering the full functionality of the sainted SE/30 (and then some) in a convenient, portable package. Longtime Mac users are in love with this machine, and well they should be." Story starts on page 28



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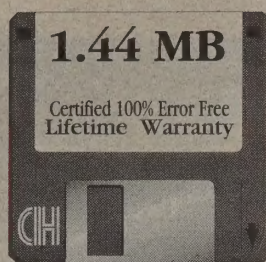


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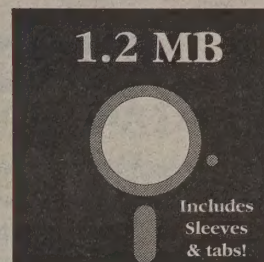


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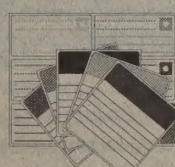
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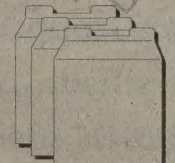
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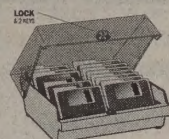


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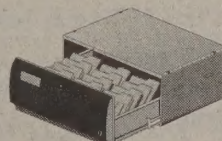
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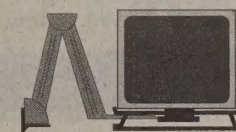
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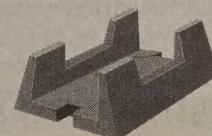
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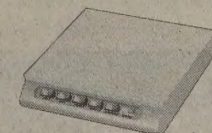
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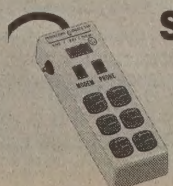
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As we return, heads spinning slightly, from the first NeXTWORLD Expo, it's pretty obvious that despite much industry skepticism and more than a few false starts, the NeXT platform is going to be a significant force in the evolution of computing.

We're proud to present John Perry Barlow's interview with NeXT (and Apple) founder Steve Jobs, beginning in this issue and concluding next month. It's been a long time coming, and, like the NeXT itself, worth the wait. We hope you find it interesting and informative. Story starts on page 47

Meanwhile, Jobs' earlier brainchild, the Macintosh, has also attained new levels of insane greatness with the PowerBook 170, a review of which starts on page 28

—ME

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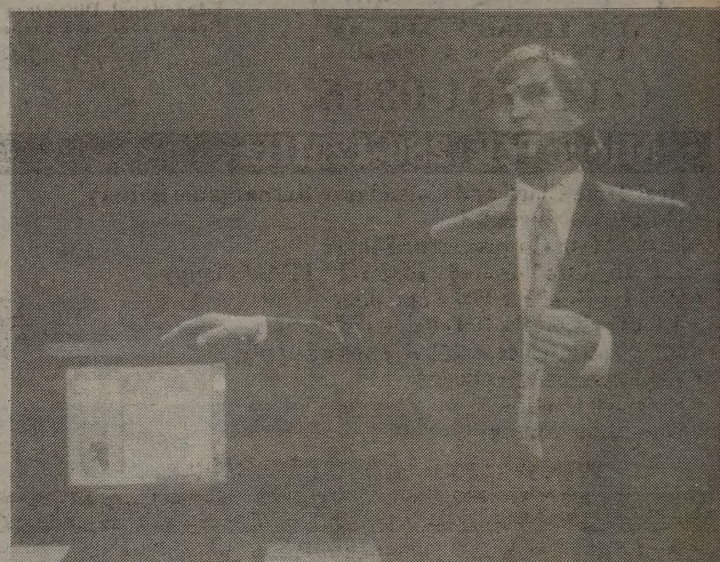
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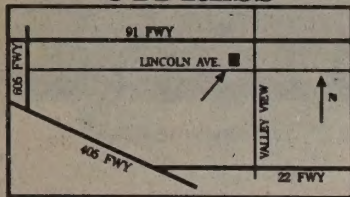
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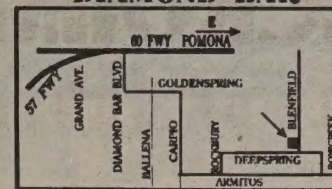
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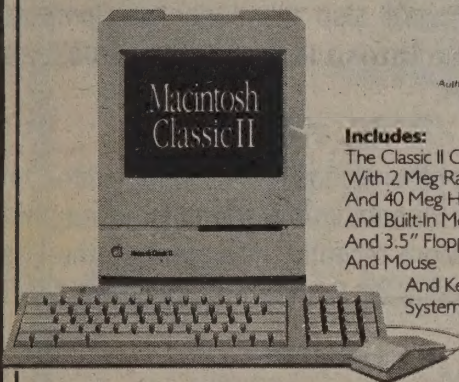
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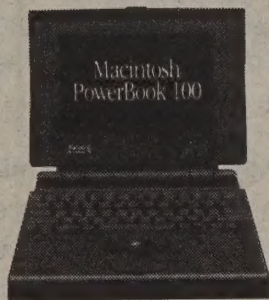
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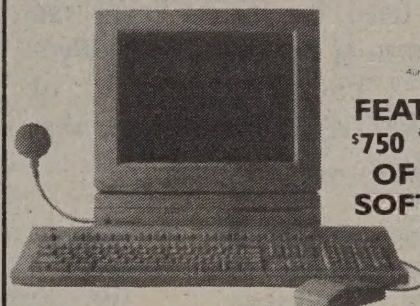


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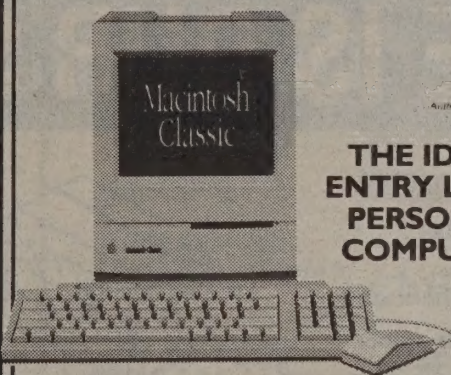
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CONTRIBUTORS

Writers in this issue:

John Perry Barlow is a cofounder of the Electronic Frontier Foundation, a lyricist for the Grateful Dead, the former Republican county chairman of Sublette County, Wyoming, and a contributing editor of *MicroTimes*, *NeXTWORLD*, and *Communications of the ACM*.

Mikael Blaisdell is a consultant and customer support specialist based in the Bay Area.

John C. Dvorak is the force behind many columns, books, and the occasional radio program. He's also in the process of launching a line of software products.

Bennett Falk, major mainstay of the tech support department at Sybase, has been working in UNIX environments for about ten years now and writing for *MicroTimes* since our first issue.

Paul Hoffman is an industry analyst who's been writing about microcomputer technology for ten years. He also writes books about popular microcomputer topics, including several on Microsoft Word.

Ed Kahn lives in Studio City and writes about laptops and other interesting PC technology.

Contributing editor Matthew Leeds works at Brøderbund Software. He is also a writer and photographer, and has been writing about the Amiga almost from the day it shipped.

Woody Liswood has been writing about microcomputer hardware and software since 1980—his articles have appeared in the *Whole Earth Software Review*, *Personal Computing*, *PC World*, and *Compute!*, and he has published a book on micro-based Human Resource Information Systems.

Mike Markowitz, Game Wizard, works in the computer lab of a large Southern California

university and designs games for fun.

Contributing editor Brock N. Meeks lives in the Washington, DC, area and writes about telecommunications-related subjects when not working as a war correspondent.

Tony Reveaux is a San Francisco-based consultant; he's also the editor of *Computer Publicity News* and a contributing editor of *Artweek*.

Among other things, contributing editor Jim Warren founded *InfoWorld* and the Computer Faire. More recently, he organized the First Conference on Computers, Freedom & Privacy.

Wayne A. Yacco is an editor, writer, and consultant specializing in business applications of microcomputers. He's a frequent contributor to many trade and business publications, and lives in Burbank.



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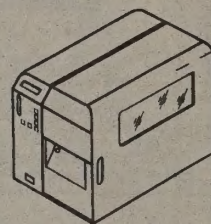
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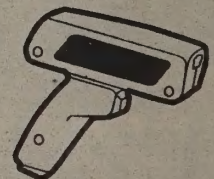
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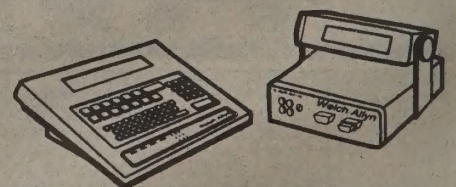
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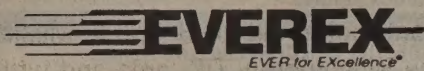


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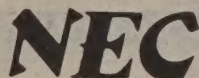
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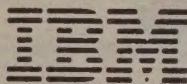
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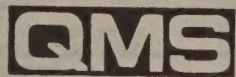


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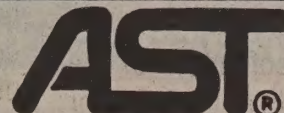
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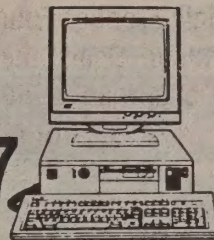
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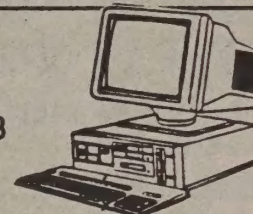
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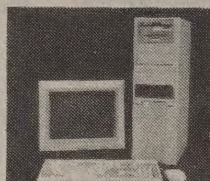
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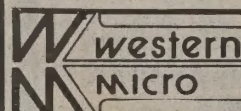
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ASSISTANT PRODUCTION MANAGER/SALES LIAISON

Sheryl Manchester

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Mary Beth DeSantis

PRODUCTION ASSISTANT Alex Marmur

TRAFFIC ASSISTANT Tami Martin

ART STAFF Jennifer Bagwell, Donna Bogener,
Christine Boutin, Lisa Spencer, Diane Wallace

CAMERA OPERATOR John Moorehead

NEWS EDITOR Paul Hoffman

PROOFREADER John Downen

CONTRIBUTING EDITORS Lenny Bailes, John Perry

Barlow, John C. Dvorak, Bennett Falk, Ed Kahn,

Matthew Leeds, Mike Markowitz, Brock Meeks,

David Morgenstern, Tony Reveaux, Jim Warren,

Wayne A. Yacco

CONTRIBUTING WRITERS Nick Anis, Mikael Blaisdell,

Anna Couey, Kathleen Creighton Adam Gaffin,

Peter John Harrison, Fred Lieberman, Woody Liswood,

Ben and Jean Means, Aubrey Pilgrim

CONTRIBUTING PHOTOGRAPHERS Jay Blakesberg,

Michael Jay, Ann Summa

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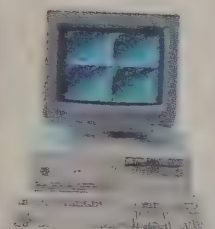
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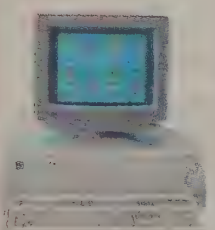
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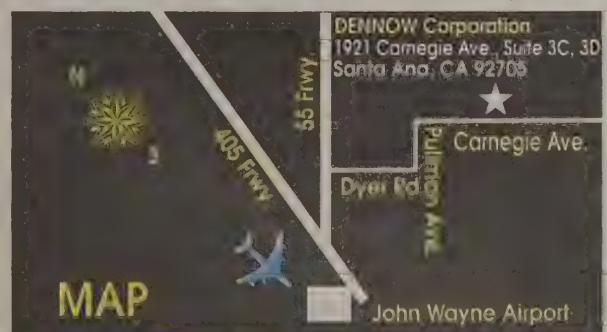
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INDUSTRY INSIGHT

Consumer Multimedia

BY PAUL
HOFFMAN

CONSUMER ELECTRONICS AND COMPUTERS: PORTENTS FOR 1992

Unless the recession deepens or becomes a depression, many more computer users will find themselves playing and watching this year. Entertainment such as television and music will probably dominate the new computer announcements for the year. At the three big consumer conferences at the beginning of the year—the Consumer Electronics Show, Macworld Expo, and the National Association of Music Merchants—the message was the same: It's the year of consumer entertainment.

Much to the chagrin of many faithful Macintosh users, Apple President John Sculley made a much more important keynote speech at the Consumer Electronics Show (CES) than at Macworld Expo. At CES, he announced that Apple would begin this year to offer Macintoshes with more built-in capabilities for entertainment, specifically more color and CD-ROM readers. He called these "consumer-configured versions of popular low-end Macintosh products," meaning less expensive Macintosh computers on the low end of the Mac line. Although his Macworld Expo speech emphasized another Apple technology that ties into entertainment, namely its QuickTime multimedia enhancements to the Macintosh operating system, his CES speech had far greater impact.

The second part of his CES speech was a preannouncement of future Apple products that won't look much like computers. These products will help people handle information in an active rather than passive fashion, defining a new market that's more interactive than television and stereo. "The transformation from analog to digital technologies," said Sculley, "opens the possibility for a wide

range of potentially very innovative and useful devices that we are calling generically Personal Digital Assistants (PDAs). Unlike personal computers, which are general purpose products requiring a certain level of user skill, PDAs will focus on specific functional capabilities and will be designed to be much easier to use than computers. PDAs will include such devices as electronic books, electronic organizers, multimedia players,

made last year, particularly when QuickTime was revealed, few people were buying. This year, many dealers reported that they sold out of items such as video input boards and video mixing systems. Although there was a great deal of tire-kicking in Apple's QuickTime demonstration, people were more interested in established products. The crowds in the Educorp CD-ROM showcase (and at Educorp's cash registers) showed that people are now buying much more than last year. Other vendors of visual-based CD-ROM products such as Voyager were also swamped.

At CES, Macworld Expo, and NAMM, the message was the same: It's the year of consumer entertainment.

NEW FCC PLAN MAY MAKE WIRELESS EASIER

Mobile communications in everything from telephones to computers may become much more robust in the next ten years. For years, network and computer manufacturers have been pleading with the Federal Communications Commission (FCC) to allow more frequencies for high-speed data communications. Unfortunately, large chunks of the radio spectrum were allocated over fifty years ago to groups who do not use them much, such as police and railroads, but those groups have first priority.

Under a new proposal, the FCC is recommending that these large bands of frequencies be allocated to "emerging technologies." The groups using the bands will predictably protest, but the FCC has come up with a novel way for them to share: any new technology that displaces a current one in a particular band must subsidize the current technology's move to another area of the radio spectrum. Thus, if someone wanted to use the police radio spectrum for something like hand-held computers communicating with satellites, the people requesting the

electronic note takers, display telephones, and personal communicators." Of course, this begs the question of why Apple doesn't simply make its computers as easy to use as these PDAs.

One area in which Apple is very different from other companies in the consumer arena is in networking. Apple will use its knowledge of networking to make PDAs interact on a much more intelligent level than current technologies. For example, your electronic organizer will be able to exchange information with your clock radio and your VCR, and maybe even your coffee maker.

On the floor at Macworld Expo, the crowds were much more interested in actually buying video technologies than in previous years. While many announcements were



Paul Hoffman is an industry analyst who has been covering microcomputer technology for ten years. He can be reached on Internet (phoffman@well) and MCI Mail (264-3171). He also writes popular microcomputer books.

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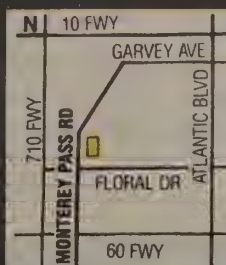
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police bands must pay to have the police moved to another area.

"This is the first time the commission has proposed a marketplace mechanism to make room for new services, where the new services with new technologies buy out the old ones," according to the FCC's chief of engineering and technology, Thomas Stanley. The free-market approach is logical, since many of the desired bands are allocated to public safety, not other consumer uses. If a group of network vendors wants a particular band badly enough, they can pay to move the current users (including buying them new equipment) and then take over the band.

These moves may not be as expensive as they sound, because of the speed at which digital technology has evolved. For example, assume that a group wants to use the radio bands currently used for police voice communications for digital transmission of data. The group has many choices. They could find another band that is usable by voice and pay to upgrade all the police transmission equipment to that band. Alternatively, they could simply add digital converters to the current police equipment and dedicate a much smaller part of the band to digitized voice for the police. This would make voice transmis-

sions clearer and less wasteful of the spectrum. It would also help improve reliable voice digitization technology, and might give the police additional benefits, such as lower-cost terminals in their cars.

The FCC is accepting comments on the proposal for the next few months. Apple and Motorola have been two major proponents of freeing particular wavelengths that are best for the current technology. If the proposal is accepted, some little-used frequencies may be reassigned by the end of the year. It is likely that Congress will support the proposal, since it will boost the American communications industry and make users less reliant on expensive phone lines for communications.

NEW PEN-BASED COMPUTERS DROP COST BY VEERING AWAY FROM STANDARDS

Six months ago, new pen-based computers were all the rage. Computers that will use Microsoft's Windows for Pen Computing and GO's PenPoint are still waiting for either of those operating systems to be released. Even when they are available, the interest in pen-based computers dropped off significantly

when the prices (often upwards of \$4000) were announced. Some businesspeople can afford to avoid typing by spending the extra thousands of dollars, but not many.

Last month, two companies broke from the ranks and announced low-cost pen computers. Neither runs the standard operating systems, and neither has a high-powered Intel chip inside. Instead, to keep the price under \$2000, they use less-powerful (but much cheaper) CPUs and custom-configured software. As such, they present users with machines that cost half the price of the previously announced crop and represent a much more accessible system.

Poqet, the Fujitsu-owned manufacturer of ultra-tiny handheld computers, announced the PoqetPad that fits easily in the palm of your hand. Its CPU is an NEC V20HL, a low-power CPU that has the processing power of an old IBM XT. It comes with 640K of RAM and 1MB of ROM that includes MS-DOS v3.3, handwriting recognition software, and software that makes the pen look like a mouse to standard PC software. You can add additional cards that follow the PCMCIA standard for data cards such as additional RAM, software programs in ROM, and nonvolatile memory.

The PoqetPad box weighs 1.2lbs. and can easily fit in a belt pouch. It will run for sixteen hours on two AA batteries. The majority of the box is taken up by the 7.25" (diagonal) screen that shows a full 80 characters by 25 lines and CGA graphics. Clearly, the system will be almost exclusively used for text-based MS-DOS programs, and will most likely support custom programs designed for particular markets.

Competing with the PoqetPad is the Infolio from Portland-based startup PI Systems. Instead of aiming at the handheld market, the Infolio, sold by the manufacturer for \$1900, is a clipboard-sized computer that weighs just under 3lbs. The screen offers full VGA 640 x 480 resolution, giving programmers much more space for information. It is powered by a Motorola 68331 CPU (a low-power version of the popular 68020). It comes with a proprietary graphical user interface and operating system.

PI Systems is betting on the low cost to win over developers and end users. As an OEM, they expect mostly to sell to vertical markets and consultants who support companies, not computer stores. PI Systems is supplying a programming environment that runs on many computers to make it easier for developers to create programs for the Infolio. The unit uses eight AA batteries and has special power-reducing hardware. Like the PoqetPad, the Infolio can use PCMCIA memory cards. ■

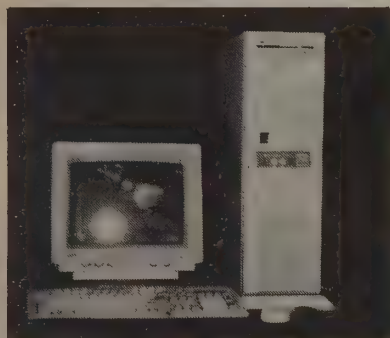
Technology News From Japan

(Excerpted from the weekly news digest of Japan Marketing Group, 400 Groveland Ave., Suite 312, Minneapolis, MN 55403, 612/871-7889. JMG covers products and events in the Japanese computer industry.)

- ▶ When SunSoft releases the Solaris 2 operating system for PCs, NEC and Toshiba will start shipping it installed on high-end PCs. These preconfigured PCs will be used as workstations similar to the bottom of the line from Sun and Hewlett-Packard. The only American company to have made a similar announcement is Dell.
- ▶ SunSoft has also contracted with Just Systems for Just to create a version of the ATOK7 Kanji front end for Solaris 2 and SunOS 5. In Japan, every program that uses the Kanji pictographic characters must have a way for users to enter the characters into the program. Just Systems' ATOK7 is by far the most popular front end available for PC compatibles, giving SunSoft a large advantage for its software. Just will also port Ichitaro, the best-selling word processor, to the new Sun systems. Just is also working with Apple to make a version of ATOK7 for the Macintosh.
- ▶ Cosmo World has developed Macintosh OCR software that can interpret about 15 characters a second. It will read all JIS 1 Kanji characters, as well as hiragana, katakana, and the English alphabet. It costs around \$2000.
- ▶ NEC has started a PC-based information service for female employees. The "Working Life" service is a closed user group targeted at more than thirty thousand female employees of NEC and affiliated companies. The service contains menu items such as personal relationships, marriage, and child care while working. NEC hopes that the service will provide information on various work opportunities to women who leave their jobs when they get married or have children, encouraging them to come back to work.
- ▶ In other NEC-women news, NEC will create an all-women sales organization to handle sales and training for the company's "Hyper 7" business word processor. The company currently has about two hundred "Word Processor Ladies" in seven locations throughout Japan doing both sales and training for the word processor. NEC will increase the number and formalize the program.

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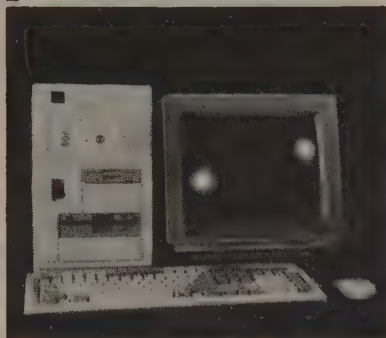


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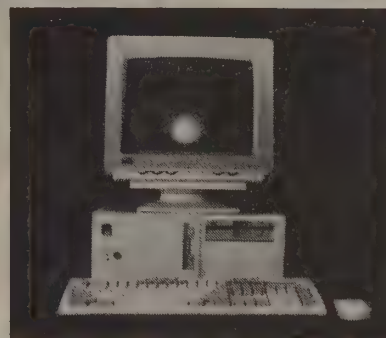


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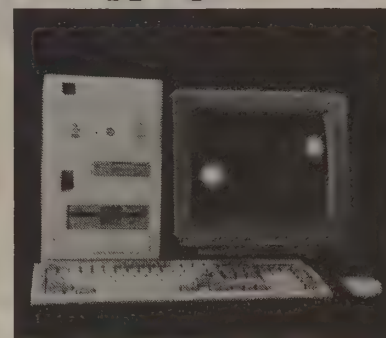


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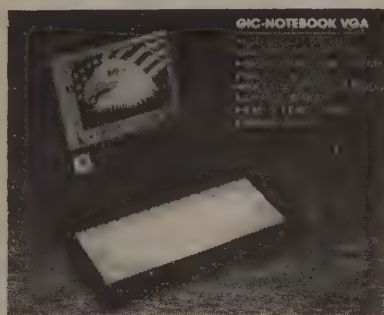
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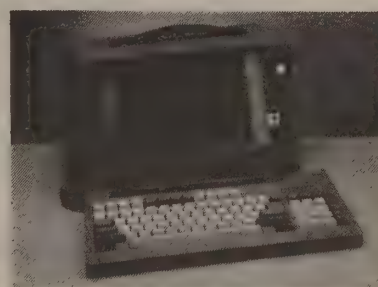
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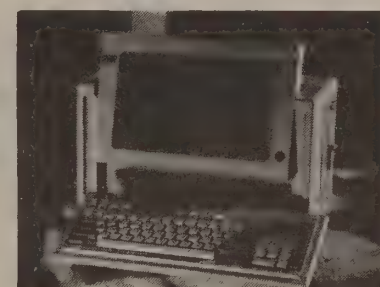
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MicroTimes Stock Index Shatters Old Record

Ignited by the Fed's 1% drop in the discount rate in December, Wall Street sent 1991 on its way with a rally for the record books. 1992 continued the trend as investors dissatisfied with low returns in other investments continued to pour their money into the stock market. For the trading session ended January 20th both the MicroTimes Stock Index and the Dow Jones Industrial Average find themselves in previously uncharted territory.

For the period, the Dow Jones Industrials soared 358.90 points, or 12.4%, to close well above the 3200 level at 3254.03. But this was a paltry return compared to the MicroTimes Stock Index which, fueled by software makers' record performance, exploded to the tune of 706.56 points, or 21.71%, to close the period at 3961.41, easily a new record for this index.

The strongest performer during the period was Microsoft, as the software concern reported second-quarter earnings of \$0.90 a share during the period. The positive earnings news combined with the bull market to send shares in the company up \$20.50 to a closing mark of \$122.50. Microsoft's shares traded as high as \$133.25 during the period before profit-takers extracted their due from the high-flying company.

The largest gainer on a percentage basis during the period was Informix, as analysts began to sing the company's praises in earnest. The result was a 79.2%, or \$9.50, increase in the company's share price to a closing price of \$21.50.

Another software concern benefiting from a positive earnings report was Oracle Systems as the firm reported second-quarter net income equal to \$0.10 a share, up from a loss of \$0.01 during the same period a year ago. Investors responded by bidding up shares in the company \$6.13, or 49%, to end the session at \$18.63.

Apple Computer's stock price soared during the period as well, adding \$14.63, or 29.6%, en route to a closing price of \$64.00. The company reported first-quarter earnings equal to \$1.36 a share, up from \$1.28 during the same period a year ago. Apple's earnings were all the more impressive when compared to the results announced by some of the other large hardware makers.

IBM, for example, announced a fourth-quarter loss of \$1.38 billion, and a \$564 million loss for the year. It was the first time Big Blue had posted a losing year. However, investors betting on an economic recovery and better times ahead for the newly restructured firm bid up the company's shares \$6.63 to a closing mark of \$95.25.

Digital Equipment also announced a loss for its most recent quarter, equal to \$138 million. Investors were more hesitant to respond positively to this news, however, as Digital's shares were one of only three in our entire index to lose value during the period. For the trading session, shares in the firm lost \$1.38 to close at \$53.63.

EXCH	COMPANY	TICKER SYMBOL	CLOSING PRICE 12/12/91	CLOSING PRICE 01/20/92	NET CHANGE IN PERIOD	PERCENT CHANGE IN PERIOD	PRICE/EARNINGS RATIO	ANNUAL DIVIDEND RATE	YIELD	52 WEEK HIGH	52 WEEK LOW
SOFTWARE											
OTC	Adobe	(H) ADBE	52.50	62.50	10.00	19.05	28	0.32	0.51	68.50	33.75
OTC	Aldus	ALDC	34.75	35.75	1.00	2.88	20	0.00	0.00	59.88	28.75
OTC	Autodesk	ACAD	33.25	38.25	5.00	15.04	16	0.48	1.25	62.25	29.50
OTC	Borland	(H) BORL	74.25	72.00	-2.25	-3.03		0.00	0.00	86.75	37.25
OTC	Informix	(H) IFMX	12.00	21.50	9.50	79.17		0.00	0.00	24.25	2.63
OTC	Lotus	LOTS	22.75	31.00	8.25	36.26	310	0.00	0.00	40.75	14.75
OTC	Microsoft	(H) MSFT	102.00	122.50	20.50	20.10	40	0.00	0.00	133.25	56.50
OTC	Novell	(H) NOVL	54.50	57.50	3.00	5.50	52	0.00	0.00	65.00	18.63
OTC	Oracle	(H) ORCL	12.50	18.63	6.13	49.00	75	0.00	0.00	18.63	5.50
OTC	Software Publishing	SPCO	15.25	21.38	6.13	40.16		0.00	0.00	35.25	12.50
OTC	Symantec	(H) SYMC	38.25	45.25	7.00	18.30	67	0.00	0.00	51.00	16.38

HARDWARE											
OTC	Apple	AAPL	49.38	64.00	14.63	29.62	25	0.48	0.75	73.25	40.25
OTC	AST Research	ASTA	17.75	22.00	4.25	23.94	10	0.00	0.00	32.75	14.50
NYS	Commodore	CBU	13.00	16.88	3.88	29.81	10	0.00	0.00	21.63	10.13
NYS	Compaq	CPQ	27.00	34.13	7.13	26.39	16	0.00	0.00	74.25	22.13
NYS	Digital Equipment	(L) DEC	55.00	53.63	-1.38	-2.50		0.00	0.00	83.00	48.50
OTC	Dell	DELL	27.38	32.25	4.88	17.81	17	0.00	0.00	36.25	19.50
NYS	Hewlett-Packard	(H) HWP	49.50	61.38	11.88	23.99	20	0.80	1.30	63.38	34.75
NYS	IBM	IBM	88.63	95.25	6.63	7.48		4.84	5.08	139.75	83.50
NYS	Silicon Graphics	(H) SGI	40.25	52.75	12.50	31.06	41	0.00	0.00	53.50	24.25
OTC	Sun										
	Microsystems	SUNW	25.38	33.13	7.75	30.54	18	0.00	0.00	38.63	20.75
NYS	Xerox	(H) XRX	63.00	69.50	6.50	10.32	12	3.00	4.32	71.25	41.38
NYS	Tandy	TAN	25.00	27.13	2.13	8.50	11	0.60	2.21	36.50	23.38

CPUs											
NYS	Advanced Micro Device	(H) AMD	15.75	19.38	3.63	23.02	13	0.00	0.00	20.50	5.38
OTC	Intel	(H) INTC	43.50	61.50	18.00	41.38	16	0.00	0.00	63.00	38.50
NYS	LSI Logic	LSI	7.50	9.75	2.25	30.00		0.00	0.00	12.50	6.25
OTC	MIPS	MIPS	8.50	12.00	3.50	41.18		0.00	0.00	20.88	7.88
NYS	Motorola	(H) MOT	60.38	78.75	18.38	30.43	23	0.76	0.97	79.88	46.88

COMMUNICATIONS											
NYS	AT&T	(H) T	37.88	40.25	2.38	6.27	63	1.32	3.28	41.38	30.25
NYS	BellSouth Corp.	BLS	49.50	49.63	0.13	0.25	16	2.76	5.56	54.88	45.38
OTC	MCI	(H) MCIC	27.63	32.38	4.75	17.19	17	0.10	0.31	35.00	19.38
NYS	Northern Telecom	(H) NT	44.38	48.25	3.88	8.73	25	0.32	0.66	48.25	26.25
NYS	Pacific Telesis	PAC	42.25	41.63	-0.63	-1.48	16	2.12	5.09	46.75	38.50

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DOW JONES INDUSTRIAL AVERAGE	3004.92	2895.13	-109.79	-3.65	07/05/91	2850.09	2932.47
STANDARD & POOR'S 500 STOCK INDEX	384.20	381.55	-2.65	-0.69	08/02/91	3132.83	3006.26
N.Y.S.E. COMPOSITE	211.82	210.44	-1.38	-0.65	08/29/91	3265.70	3049.64
NASDAQ COMPOSITE	525.13	536.02	10.89	2.07	09/27/91	3216.77	3006.04
					10/25/91	3223.68	3004.92
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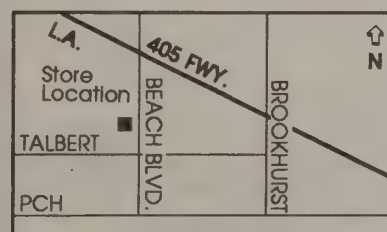
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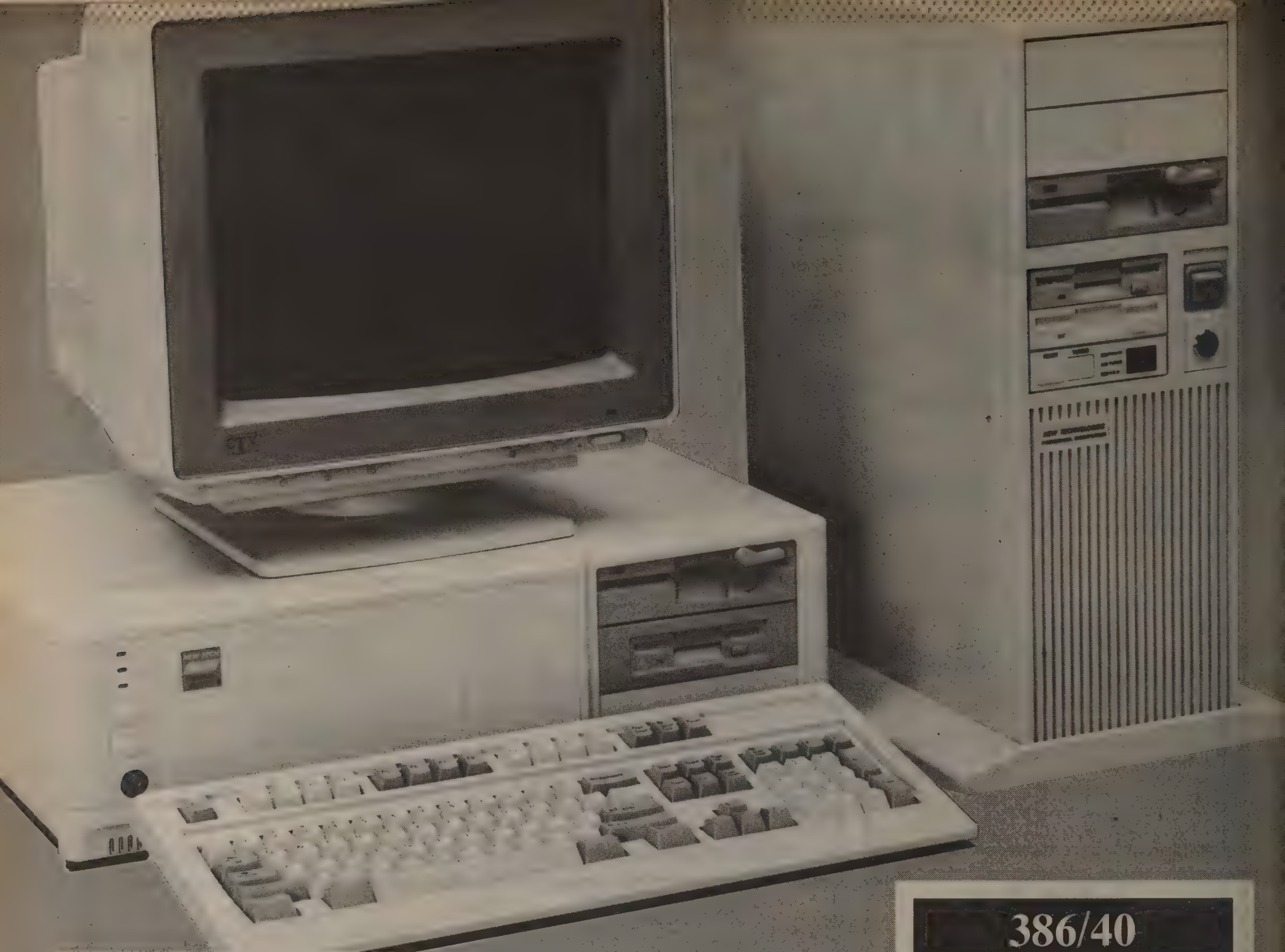
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Taxes, Computer-Based Political Power & Mega-SneakerNet

BY JIM WARREN

This column is about what isn't, but could be.

OK, folks. It's election year, and it's time we used the political power of our processors.

All previous citizen demonstrations, community action, and political revolts have required (hard-to-organize) face-to-face community meetings and planning, (expensive) mass distribution of leaflets, (very expensive) newspaper advertising, and/or

are probably around fifteen million users on public and private non-BBS computer networks in the US.

Then there's the big net. The Internet consists of about five thousand networks connecting around a million host computers with anywhere from five to ten million users—at the least.

And I haven't even mentioned the high-priced spreads—CompuServe, GEnie, and censor-prone Plodigy (*sic*). In-house company LANs offer additional potential when policy permits employees freedom of electronic speech.

What's more—most politicians have little or no idea this exists. So far. (Interestingly, the FBI, Secret Service, CIA, NSA, and other law enforcement groups are much more aware of it. The regional telephone companies are also *very* aware of it; several are quietly seeking costly tariffs that, if permitted, will destroy it.)

TAX INSTRUCTIONS TO POLITICIANS

The "Tax-Use" form appearing with this column has already been uploaded to the nets, the first of several computer-based, election-year citizen-action projects. This one is primarily for entertainment—and spleen venting. However, it can prove, for the first time, that *our* info-medium is a powerful tool for instructing our representatives. (Additionally, *MicroTimes* has about two hundred thousand distribution...)

This particular "taxing" venture is also designed to be informative. Did *you* know these budget allocations?

And if its circulation on the nets catches on, consider the possibilities: Federal representatives—to say nothing of local politicians—regard a few dozen somewhat-individualized messages as significant, often persuasive, citizen input. What if several *thousand* taxpayers send candidates this form? Further, if they feed back their data to me, I can circulate summaries on the nets—and in this col-

umn—escalating the effort via the novel notion of an informed electorate.

Then this project becomes not only enjoyable and informative; it can be powerfully persuasive.

SNEAKERNET FOR ALIENS

Back to techno-projects: Transferring data between computers by copying it onto a diskette and walking it over to the target computer is often called a "SneakerNet" transfer—even when it's mailed across the nation. For years, it has also been common in the Mac world to carry many-megabyte external hard disks from one Mac to another to exchange "significant" data—semi-trivial because all Macs connect to hard disks via a SCSI interface, and all of them include an external SCSI plug.

Extending SneakerNet, there are utility

All previous citizen demonstrations, community action, and political revolts have required face-to-face community meetings and planning, mass distribution of leaflets, newspaper advertising, and/or broadcast advertising. This has functionally guaranteed that political power belonged to those who could buy it.

REALIZABLE FANTASIES

(exorbitant!, uninformative, emotion-based) broadcast advertising. This has functionally guaranteed that political power belonged to those who could buy it.

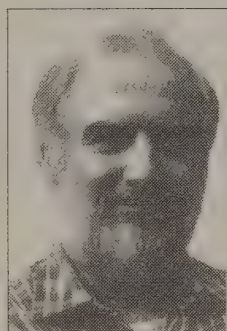
NET POWER FOR PEOPLE

The computer networks provide a hyper-cheap, *citizen-based* alternative to big-bucks political power. They facilitate online meetings, asynchronous planning, almost-free environmentally sound "leafletting," and local and global "advertising" costing no more than time, effort, and (low or free) connect-time fees. More important—information accuracy is self-regulated by fast feedback that balances false or propagandized statements.

Example circulation—local to global: The WELL in Sausalito has about fifty-five hundred subscribers. BMUG, home-based in the People's Republic of Berkeley, has over ten thousand members. There are tens of thousands of BBSes—mostly free or very low-cost, mostly serving local communities. Many if not most are networked. The virtually free Fidonet is the largest BBS net, with an estimated two million users on thousands of BBSes, mostly in homes.

There are far more BBSes than there were printing presses, also mostly in homes, which were instrumental in another citizen revolution, circa 1776.

On a national and global level, Brian Reid's recent stats estimate that the cooperatively anarchistic USENET has about 1,913,000 users on about forty thousand hosts. There



Copyright © 1992 by Jim Warren, 345 Swett Rd., Woodside, CA 94062. All rights reserved. Jim Warren founded InfoWorld, the DataCast proposal for paperless electronic newspapers, Wireless Digital, Initiative, Inc., and one of the nation's largest public microcomputer conventions. He was founding host of PBS's Computer Chronicles, founding editor of Dr. Dobb's Journal, and has chaired various computer trade and professionals' organizations. He holds graduate degrees in computing (Stanford), medical information science (UC Medical Center), and mathematics.

He organized and chaired the 1991 First Conference on Computers, Freedom & Privacy, sponsored by a dozen nonprofit and industry organizations, and is a member of the Board of Directors of Autodesk, Inc.

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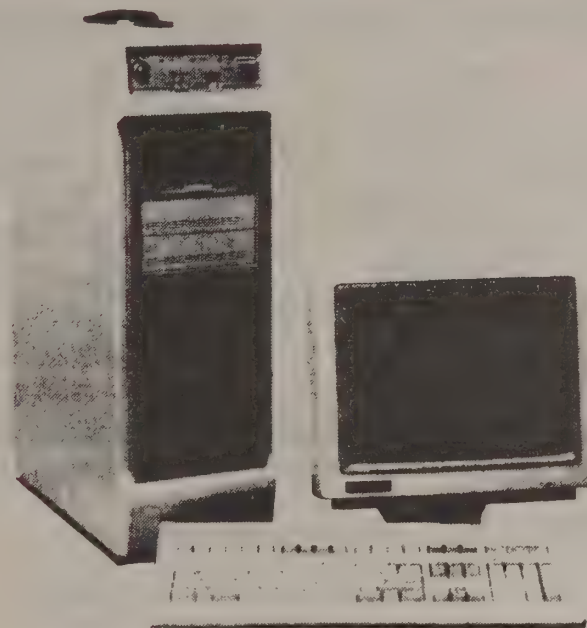
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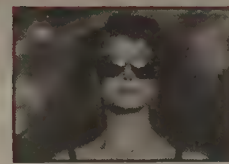
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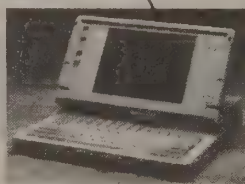
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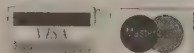
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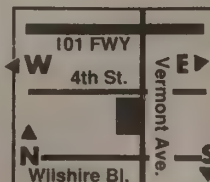
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programs that permit exchanging some *diskette* data between various alien machines, e.g. PC-to-Mac, etc. Exchanging ASCII text-files across alien platforms works reasonably well. (Exchanging text-formatting and non-ASCII text is more difficult, but that's not the point, here.)

But the half-dozen standard diskette formats are limited to a "tiny" 1.4MB or less—hardly adequate for modern micro power. Now that PC interfaces are finally catching up with the Mac, and SCSI interfaces are becom-

ing common on PCs, it's time to have utilities that exchange data between alien platforms on SCSI hard disks. This should include Unix-based workstations such as Suns and Silicon Graphics machines, and not be limited merely to PCs and Macs.

Cross-platform SCSI SneakerNet is a significant software business opportunity. This idea was prompted by June Genis of Woodside, who regularly faces such "alien" exchanges in her job at Stanford's comp center and as a Libertarian Party maven

movin' voter-registration files—for 350,000–600,000 voters. Just one of today's typical-size microcomputer datafiles. (Oops! Politics jus' sorta snuck back in. Heh!)

Aside: Some might say that larger-capacity removable media—tapes, disks, Flopticals—will satisfy this need. But far more micros have SCSI interfaces with external plugs than have any other high-capacity drive or plug-gable interface—now and for at least the rest of this century. Further, SCSI hard disks are faster, more reliable, and competitively priced per online megabyte, compared to normal removable-media alternatives. And finally, the name of the game with micros has always been computer power through high volume at low cost.

Now that PC interfaces are finally catching up with the Mac, and SCSI interfaces are becoming common on PCs, it's time to have utilities that exchange data between alien platforms on SCSI hard disks. This should include UNIX-based workstations such as Suns and Silicon Graphics machines, and not be limited merely to PCs and Macs.

(Hidden gotcha: "SCSI," standing for Small Computer Systems Interface, is appropriately pronounced "scuzzy." There are actually *several* SCSI "standards" that are only partially compatible—a polite way to say they're incompatible. Further, even the most humdrum of "standard" SCSI interfaces are infuriatingly sensitive to cable length, disk manufacturer, disk model, interface version, other peripherals in the SCSI daisy chain, etc. Nonetheless, it beats the hell out of having to change a PC's internal disk-interface cards and DOS configurations every time an external hard disk is changed.)

FOSTER FLIGHTS OF FANCY
Send *your* fantasies for realization to Realizable Fantasies, 345 Swett Road, Woodside, CA 94062. Published proposals will be attributed to their authors, unless anonymity is requested.■

DO-IT-YOURSELF TAX-USE INSTRUCTIONS TO POLITICIANS

[please copy, post and circulate, widely]

As we approach tax-day, it emphasizes that we again worked more than a third of last year for the government and politicians. This year, let's tell them how *we* want them to use the hard-earned money they take from us. When we send in our taxes, let's also send copies of this to our current and potential elected representatives, especially to this year's political candidates. (Let's not blame the IRS; they're just doing what our elected representatives tell them to do.)

Please feel free to copy this to friends, neighbors, customers, business associates and company and community bulletin boards.

Also, so politicians can't bury the results: If you send a copy of your form to me, I will compile and distribute and/or publish the results — with copies to appropriate media and officials — to the extent that I can cover out-of-pocket data-entry and publication/distribution costs. Please at least include your ZIP-code for locale-identification.

If you include name and address (and fax-number and electronic-mail address, if available), I will send you a copy of the results. Your name and personal information will not be disclosed, but I will summarize the number and percent of named respondents.

☐ I am sending a few dollars to help cover processing and publicity/distribution expenses [to "Jim Warren" please]. (After data-entry expenses, any/all remaining donations will be used for wider distribution and/or publication, possibly even including ads. My time/work is entirely pro bono. —JW)

☐ Jim, I want something for nothing. Process my data and give me the results, but I'm not willing to help pay any of the out-of-pocket expenses. (If this option is widely checked, then we will know what drives much of our tax-and-spend problems, won't we?)

—Jim Warren, "Political Irritant," 345 Swett Road, Woodside CA 94062; fax/415-851-2814; e-mail: jwarren@well.sf.ca.us or jwarren@autodesk.com
[FYI: Founder of Infoworld newspaper; PBS "Computer Chronicles" founding host; MicroTimes Contributing Editor and "futures" columnist; founding editor of Dr. Dobbs's Journal; organizer and Chair of the First Conference on Computers, Freedom & Privacy; member of the Autodesk, Inc. Board of Directors; etc., blah blah blah.]

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6.	%	\$	1.2%	20,219M	Agriculture
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11.	%	\$	5.0%	81,300M	Health
12.	%	\$	7.0%	113,811M	Medicare
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my tax:	100.0%	\$	100.0%	\$ 1,618,447M	your FY-1992 budgeted federal expenditures

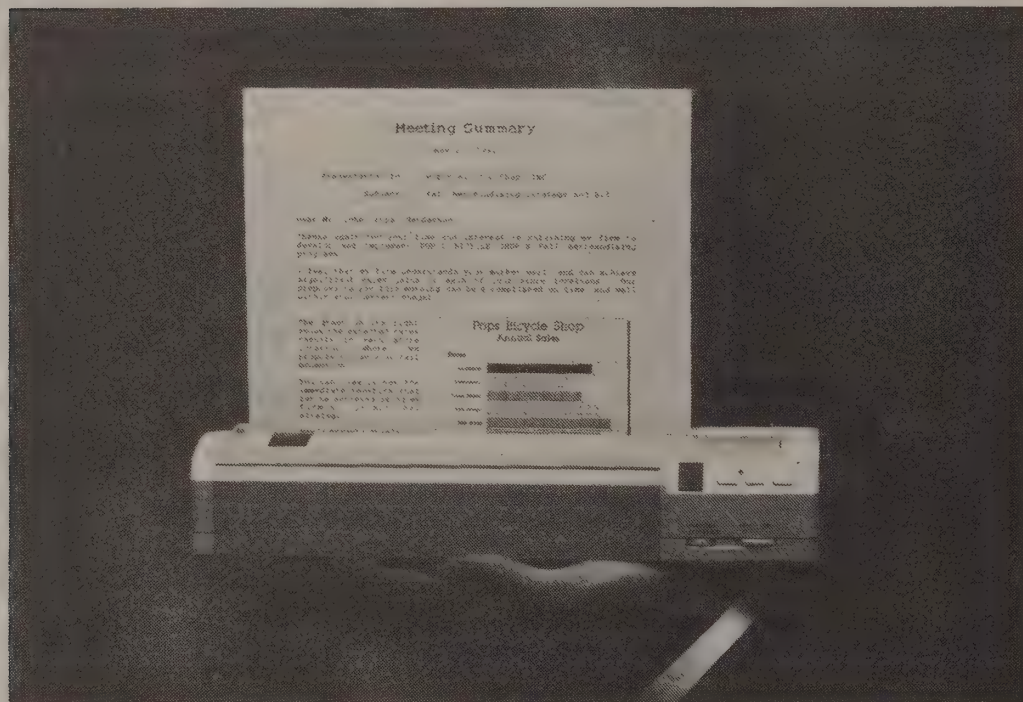
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No matter how small portable computers become, the busy, mobile user must still worry about printing their documents. While there are other very good portable printers available, finally, a unit small enough to fit into a notebook computer carrying case has been introduced—the tiny Citizen PN48. It provides an excellent solution for high-quality, quick printouts.

There are, of course, tradeoffs for choosing this printer. It is designed for a specific use: printing a few documents in high quality when you are away from a larger printer. Don't get this printer with the idea that it will replace your regular machine. It won't. But the main advantage of this unit is its size. It measures approximately 12" x 3.5" x 2" and weighs only 2.5lbs. including the rechargeable battery.

This printer offers neither a cut sheet feeder nor pin feed capability. It's designed strictly for one page at a time. But it will give you a letter that will rival one printed on a laser printer. Admittedly, it will take a little longer to get the job done, but, nevertheless, it will be done very well.

The PN48 uses a thermal technology. Two ribbon cartridges come with each printer. One is a multistrike model, reusable five times, that provides draft-quality documents. The second is a single pass ribbon that produces quality printing. Currently, only black ribbons are

available. Included with the printer is a vinyl carrying case, a printer cable, and an AC adapter that also serves as a battery charger. One change I would recommend is to redesign the carrying case to hold the printer *and* its cable. Since you need to carry the cable, why not have it fit into the carrying case and allow you to keep everything together?

The PN48 will print twenty to twenty-five pages of average text, or only about twelve to fifteen pages of graphics, on a single battery charge. It takes approximately six hours to recharge the included NiCad battery pack.

This printer offers a good deal of versatility despite its small size. It can print paper, envelopes, and transparencies. There are two methods to choose to feed the paper. You can load it from the rear of the unit, in which case it will handle paper

up to 10.2" wide and up to 20lb. stock. Or if you load the paper from the bottom, you can use a heavier stock, but it will only accept paper up to a width of 9.6".

The Citizen PN48 works with Epson and IBM printer drivers. These two drivers, nearly universal, ensure that you will be able to print from almost any software. A dip switch inside the printer chooses between the two emulations as the default. The printer provides two letter-quality typefaces, Roman and Courier, and the characters per inch setting can range from ten to twenty.

A final feature to mention for this printer is the documentation. This spiral bound booklet is wide and shallow making it easy to be carried with the printer for quick reference. It is extremely well organized and contains specific instructions on how best to use the printer with specific software. Besides the printed booklet, there is a disk that can be installed on your portable computer that goes into great detail about everything to do with the Citizen PN48.

Overall, this is a remarkable product. As long as you are aware that you are buying a printer designed to offer high-quality output of limited quantity, it is a product to examine in detail and consider adding to your computer travel kit. The printer comes with a twelve-month warranty. ■



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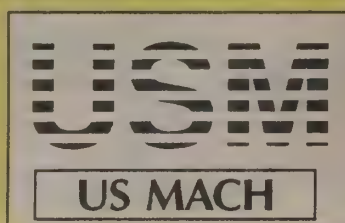
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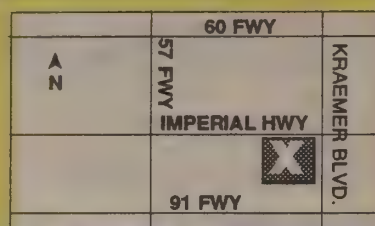
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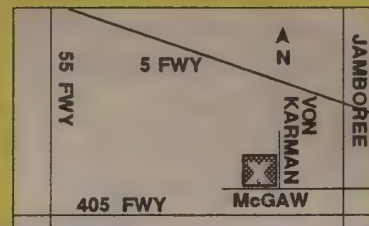


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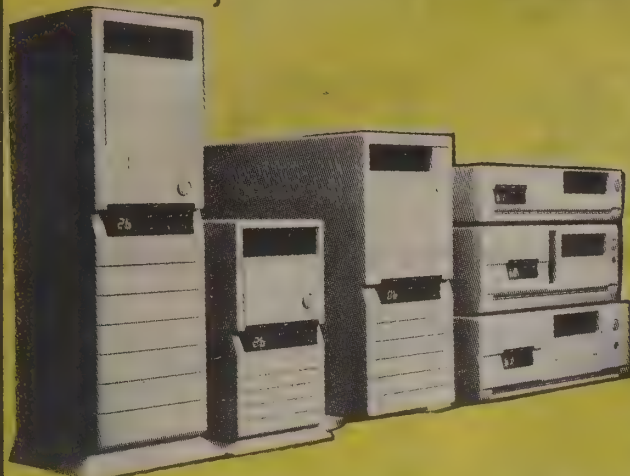
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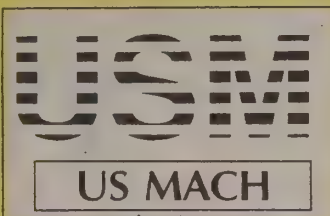
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The Macintosh PowerBook 170

Quite Possibly, The Best Machine Apple's Ever Made...

BY MARY
EISENHART

For the last couple of months, I've been using a PowerBook 170, the top-of-the-line model of Apple's new notebook Macs, as pretty much my only computer. PB170 #F2142J75703 and I are now bonded to the point of inseparability.

For a lot of us Mac users (and non-Mac users—this machine seems to be attracting unprecedented interest in the DOS world), it's the only computer we'll need for quite some time. And—in the long-deferred realization of a dream we've had since 1984—it goes where we go. I've taken this machine to professional conferences and outdoor concerts. It's great on airplanes. It's great in meetings.

And, thanks to good design and the efforts of multiple third parties, it will do just about anything a desktop Mac will do, except 24-bit graphics. Multimedia and publishing types will still probably be better off with the most souped-up Mac II or Quadra they can get for their page-layout, sound, graphics, and video work; those of us who basically want to take our work/lives with us wherever we go will find the PowerBook the answer to our prayers.

This review particularly concerns the PowerBook 170. There are two other PowerBooks—the 68000-based PB100, which is small, light, and relatively stripped-down (e.g., floppy drive is optional), and the 16MHz 68030-based PB140, which includes the floppy drive and offers an internal faxmodem as an option. While I've yet to hear anything less enthusiastic than yelps of delight from owners of these two machines either, the 170 is probably the machine of greatest interest to power-users (its 68030 is the 25MHz variety) and to those who want to use it as their only Mac.

In future articles we'll be covering some of the hardware and software products coming out for the burgeoning PowerBook market. This review will confine itself to the 170.

WHAT'S NOT TO LIKE?

Not even the 170 is perfect, but the gripes are relatively insignificant. To note them quickly and then get on to the good stuff:

- If you use the backlighting on the perfectly lovely Active Matrix LCD screen (the same as the one that was the Mac Portable's best feature), you'll burn out your batteries pretty quickly, usually within two hours. This is not, strictly speaking, Apple's problem, it's a limitation of the current state of battery technology.

The machine and system software (the 170 comes with system 7.0.1 installed, and won't boot with earlier generations of software) provide several useful tools for prolonging battery life, notably a dimmer switch for the screen and a PowerSaver option that slows the processor from 25MHz to 16. In my experience, it is possible, barely, to make the backlighting last for a full day of intermittent note taking, mostly by virtue of turning on the PowerSaver, setting the Sleep function to take over after very short idle periods, and not using Virtual Memory. If you can get by without backlighting, going all day on a single battery charge is quite possible.

There are those who claim that two hours of battery life is adequate for a portable computer. These people are not Mac users.



**The screen is beautiful.
Other Mac displays are
blurry by comparison.**

Most people who plan to run the machine on batteries will want to pick up an extra set of batteries and a charger. For the moment, these are proprietary Apple equipment available only from Apple dealers, not generic products.

On the plus side, the 170 is much better than the Portable in charging quickly and holding a charge while sitting idle and unplugged.

- The aforementioned dimmer switch on the 170 doesn't have much of a range. The lowest backlit setting is still obnoxiously bright in a dark room, and the un-backlit setting is pretty useless in that situation. The Mac Portable's dimmer was software-based and had a much better range, and I'd like to see it incorporated in the 170. (The 100 and 140, which have lower-cost SuperTwist screens instead of Active Matrix LCD, are adjustable from software.)

- The 170 ships in only one configuration: 4MB of RAM, 40MB of hard disk. Most users will probably feel cramped with this little memory and disk, especially if this is their only computer; on the other hand, it's a real boon for vendors of disk-doubling software and PowerBook SIMMs.

As a practical example: In my normal work life on a 4MB SE/30 running 6.0.7, I usually have MicroPhone II, FileMaker Pro, and MacWrite II running under MultiFinder. On the PowerBook, System 7, which is nothing if not a memory hog, refused to let me open all three apps at once. The workaround is to head for the Control Panels and turn on Virtual Memory, which, by a lot of swapping to disk, fools your machine into thinking it's got a lot more RAM than it does—at least till you run out of hard disk. (Which, at 40 megs, comes sooner than you might think, if you're using big programs.)

The pitfall with Virtual Memory, which is otherwise a godsend, is

BUSINESS SOLUTIONS

that it involves a lot of disk access and therefore runs down your battery a lot faster. Apple recommends turning VM off if you're running on batteries.

•With all the hardware packed into its little case, the 170 is not weightless. It's about 7lbs.

However, when I consider the weight of the textbooks I used to haul around in college, this is still a big improvement.

•Generally, the construction of the 170 is remarkably solid. For instance, the screen's hinge is strong enough to keep the display

where you put it and, after two months of near-daily use, shows no sign of weakening. And there's a very good latching slider-door for the battery compartment.

Which makes it particularly annoying that the port door (which covers everything from the on-off switch to the phone jack) is attached solely by two flimsy plastic pins and is hinged on the bottom, making it prey to a number of hazards, including the sheer weight of the half-dozen cables that could easily be attached.

When the 170 arrived, the boss and I discussed this. "It'll break off in a week," was his assessment. Actually it lasted ten days. And then I, a person rarely confused with Arnold Schwarzenegger, broke it off. In the course of normally opening it.

ON TO THE GOOD STUFF

So it's not perfect. However...

•It's fast and powerful.

•It's a full, uncompromising Mac. Two serial ports; one ADB port so you can attach a keyboard, drawing pad, or other input device; stereo sound in and out (the ubiquitous Apple Microphone is included); a SCSI port (which needs a non-standard cable) for attaching external hard drives or, perhaps, the new adapter box from Radius that lets you attach external monitors. And the marvelous switching power supply that allows you to plug in the machine anywhere in the world (up to 240V, anyway) without frying it. (This used to be standard on all Macs and has been

The PowerBook's Classic keyboard has one huge advantage for this type of machine—it's much, much quieter than the Standard or Extended. At one seminar, the person next to me commented that he couldn't hear me typing over the sound of his own papers rattling.

a casualty of cost-cutting in most of Apple's current product line.)

•It includes an internal faxmodem in its standard configuration (2400 baud modem, 9600 baud send-only fax). Modems have never been Apple's strong suit, and this one has the occasional bizarre personality trait (for example, presumably to conform to varying laws worldwide, it will absolutely not let you redial a busy/no-answer number more than ten times. The only fixes seem to

Continued on page 122

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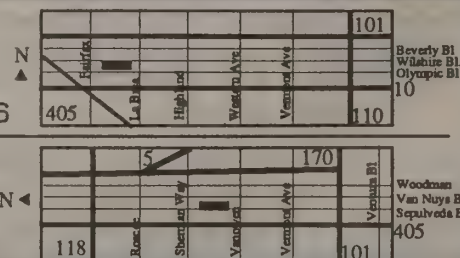
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The Sociology Of UNIX

Form And Function In Business Computing

BY BENNETT FALK

Cognitive dissonance is a terrible thing.

Do you ever stop to think what it means that this column appears in the Business Solutions section of *MicroTimes*? Are there, somewhere, Captains of Industry in grey flannel suits rearranging their portfolios because they've just discovered the "-v" option for grep?

No, probably not. UNIX is not much like Lotus 1-2-3. It is not clear at all how the modern manager or executive would actually use UNIX to solve the problems of doing business. In fact it's difficult to imagine the modern executive using UNIX at all. On the other side of the coin, the actual users of UNIX don't seem particularly interested in becoming executives, modern or otherwise.

Nevertheless, sales of UNIX products account for hundreds of millions of dollars annually, and much of this money is spent by the business community. Clearly a lot of people are finding or trying to find some business advantage in using UNIX.

BUSINESS PROBLEMS

Expressed crudely, there are really only two problems any business must solve: increasing revenue and holding down expenses. UNIX, because it is more portable than anything else and because hardware seems to get cheaper from generation to generation, has a healthy reputation for reducing expenses for computerized businesses. No doubt UNIX can also be used to increase revenue, but the bulk of the market is preoccupied with "protecting its software investment" and holding down the cost of its hardware.

Of course these things are easier to say than to do. No one has ever held down the cost of anything just by buying and installing a computer running UNIX. It's not even clear that being extremely clever at the keyboard will, by itself, result in any business advantages.

Again, putting the issue crudely, the problem of how to use UNIX profitably in business seems to require a managerial solution, not a technical one. The fundamental issue has to do with how to organize the people involved to make the computer equipment productive.

UNIX SOCIETY

The division of labor at a typical UNIX site is something like this. There is a community of people who use the computer to get their work done. Other people are responsible for administering the environment in which the users work.

The UNIX system administrator typically oversees the functioning of both the hardware and the operating system, and does what is necessary to protect the user community from disasters of various kinds. This protection usually takes the form of mundane things like maintaining backup copies of all the information on the system.

The system administrator can be either a full-fledged member of the user community or a consultant whose participation in the user

community is purely provisional. Usually the system administrator is the point of contact for any technical communications with the companies from which the hardware and software were purchased.

It is unlikely that such a society of users would work exclusively with UNIX itself. There is usually some software application that does the actual work of the business. The application may require maintenance of its own, and there may be a separate administrator for the application.

In a tech support situation, the consumer's demand for an on-site presence of some sort is only rarely motivated by technical concerns. The on-site engineer is a high-tech hostage. The cost of maintaining an on-site presence gives the vendor a powerful incentive to resolve the technical issue as quickly as possible.

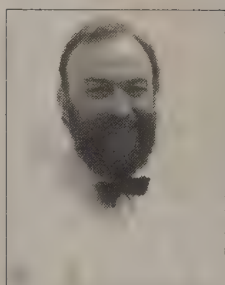
As with the PC world, applications may be purchased off the shelf, custom programmed, or some hybrid of the two. Any application that involves custom programming will bring software developers into the community, either as full-fledged members or as consultants.

Development is a relatively small part of the application's life cycle, and when this is complete, developers will either find other applications to work on or move into maintenance or administrative roles for the applications they have built.

Off-the-shelf applications may still need maintenance, and there will be either a designated administrator for the application or the job of administering the application may revert to the system administrator.

Apart from the social roles grounded in some kind of technical competence, there are other roles in the community that depend more on business competence. The executives and managers who fill these roles monitor how well the social and technical system is

UNIX



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BUSINESS SOLUTIONS

functioning to achieve the goals of the business, and changes are made as necessary to achieve those goals.

WHEN SOCIETIES COLLIDE

The thoughtful reader will have figured out that a UNIX site can be a complicated thing. The roles described above determine not only how people within a company will interact, but how interactions between companies are structured.

The business of providing technical support is a good example of how this social organization restricts the possibilities for interaction between representatives of different companies.

A user has a technical problem and the consumer company's technical staff reports the problem to the support staff of the vendor.

If the consumer's and vendor's technical representatives cannot solve the problem to their mutual satisfaction, the consumer's technical staff will "escalate" the problem to a manager. Usually a mirror image of this escalation will happen in the vendor's support organization; it is rare that the manager from one company would have any interest in talking to the technical staff of another.

The manager-to-manager conversation that follows is not likely to be about the original technical issue at all. It will instead be a "metadiscussion" about how the technical issues will be resolved.

The object of this discussion is to come up with a plan for resolving the technical issue and providing adequate reassurance to the consumer that the solution will not endanger the consumer's profitability.

The managerial discussion can range very far afield from the original technical issue, and it is not uncommon for an intransigent or dissatisfied manager to demand an engineer on-site to address the problem.

The consumer's demand for an on-site presence of some sort is only rarely motivated by technical concerns. The on-site engineer is unlikely to discover anything that couldn't be discovered from the engineer's usual workplace. Frequently, the on-site engineer is a high-tech hostage. The cost of maintaining an on-site presence gives the vendor a powerful incentive to resolve the technical issue as quickly as possible.

WHERE SOCIAL ORGANIZATION COMES FROM

So far we have pretended that business and technology do not have much to do with each other and that managers who make decisions about how computer resources are to be used can do so without taking into account the technology they are managing. This is not entirely true.

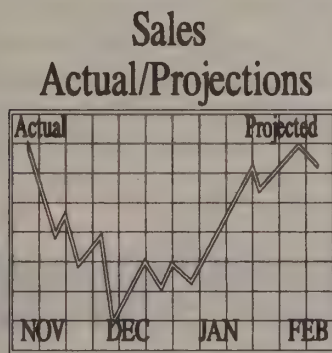
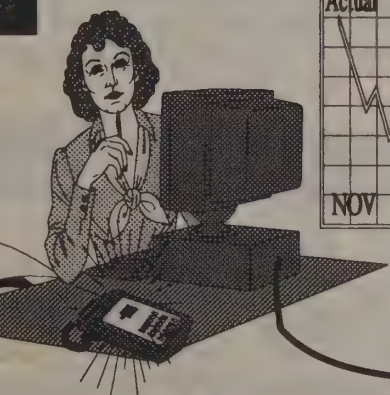
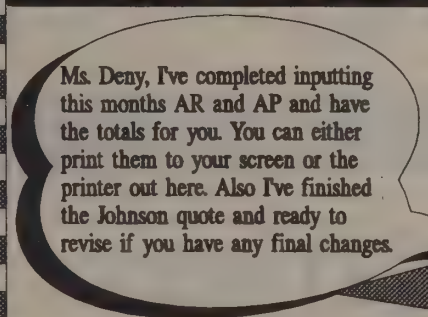
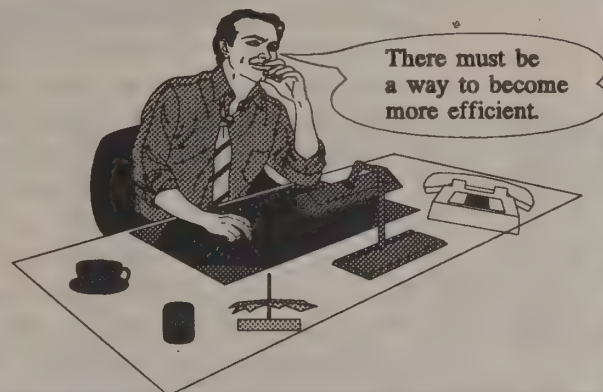
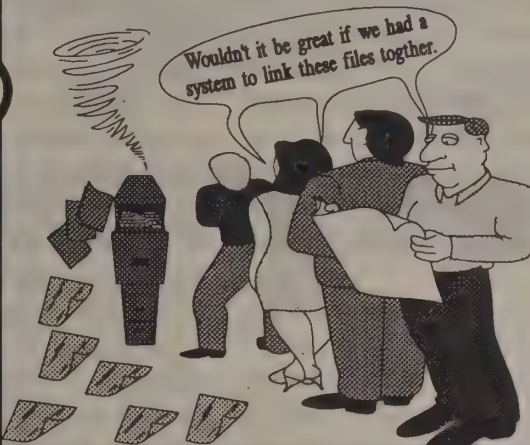
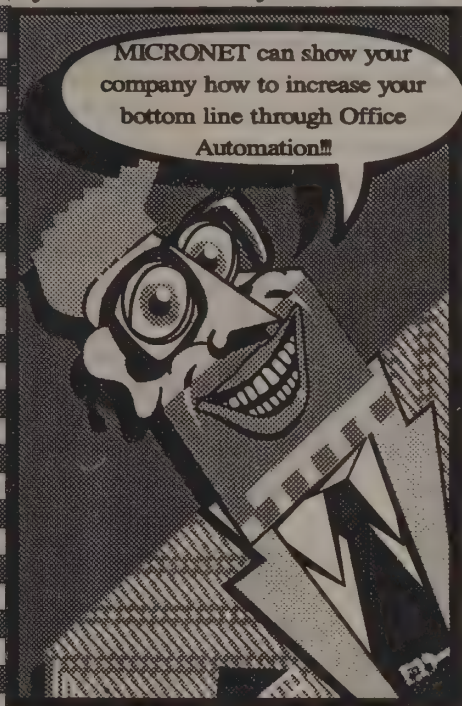
To some extent, the social organization of the people who work with computers is shaped by the capabilities of the computers with which the organization must work. The organization of the people who work with some computerized resource mimics (sometimes intentionally, sometimes not) the structure of the resource.

In general, the UNIX society described above is a middle ground between the social organization of businesses run on personal computers and that of mainframe shops.



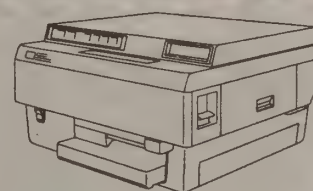
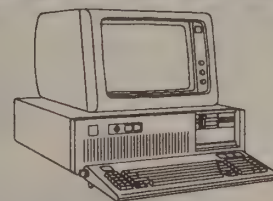
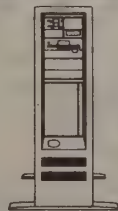
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The people who work exclusively with single-user, personal computers do not have to adhere to any particular division of labor to make their computers work. They appear to be remarkably free. The distinction between "end user" and "system administrator" is wasted on most PC users, because administering the PC is just another part of using it.

The prevalence of "off-the-shelf" applications in the PC world reinforces the solitariness of the personal computer user. The development and maintenance of the application happens somewhere else, away from where the application is used. The result is a flat social organization that is not much like a community at all. Individual members stand or fall on their ability to get answers out of computers controlled exclusively by individual members. The productivity of the society at large will never be more than the sum of the individual members' productivity.

At the opposite end of the scale, the people who work with main-frame computers are not so free. They work with machines whose expense and complexity require a more rigid division of labor. The business of administering the system's disks, for example, is likely to be a full-time job, and the people who do this won't have the time (and may not have the expertise) to administer the CPU or the network interface or any other component of the system.

UNIX-based systems tend to fall between these extremes. Some division of labor at a UNIX site is necessary: There really should be someone responsible for the administration of the system and the applications that run on it. But this is not a necessity because the system as such is complex, but rather because the system is a shared resource. Exactly what shape the division of labor will take can be left

to the imagination of the manager. The skills required to manage a UNIX system are easy enough to acquire. Ideally the administrator's role should be something any member of the community is competent to fill.

THE BUSINESS/TECHNOLOGY BORDERLINE

The boundary that distinguishes between technical and managerial skills is finally where any computer system succeeds or fails in business. Computer systems are not inherently either profitable or unprofitable, and the real measure of a system's success is how easily technical information about the system can be taken into account when managerial decisions must be made. The characteristics of the computer system will influence and shape the managerial decisions that are made; the trick is simply to make these influences explicit so that business decisions can be made self-consciously.

The phrase "Open System" is bandied about a great deal in UNIX circles, usually referring to portability or the ability of products from different vendors to cooperate. Apart from its use as a piece of marketing ballyhoo, however, the notion of an "open" system represents a bias in favor of the dissemination of technical information in a form anyone can understand.

In spite of the UNIX community's great affection for esoterica and for the "guru" metaphor, the idea behind UNIX is that technical information should be freely available and easy to understand. Further, a system that is well understood will be more useful than one that is not, and on this score, UNIX is "manager-friendly" in a way that other operating systems are not. ■

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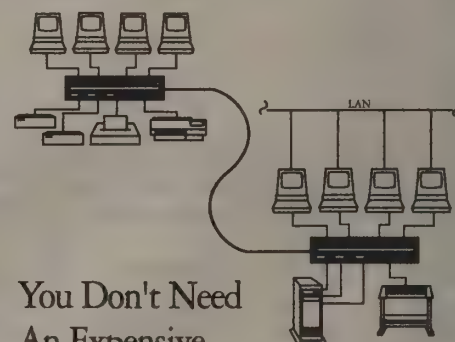
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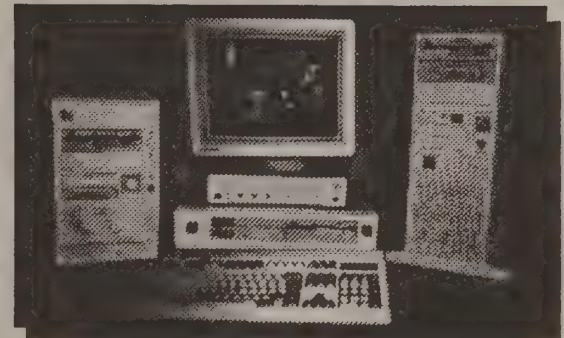
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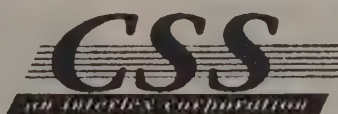
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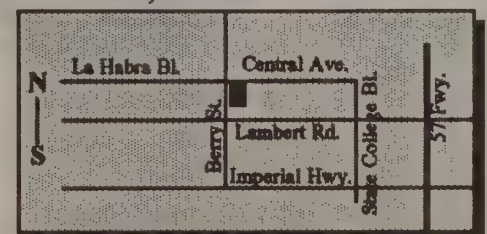


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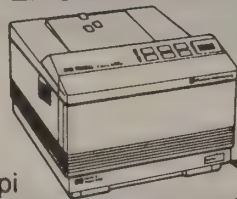
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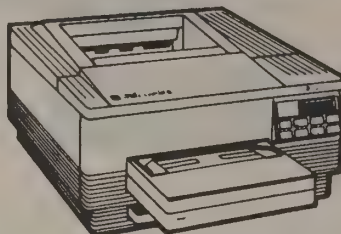


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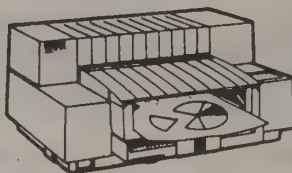
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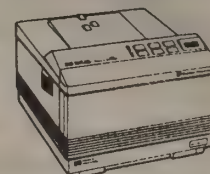


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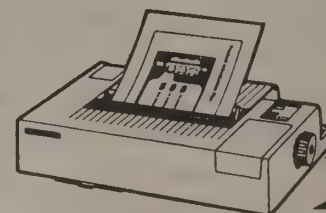
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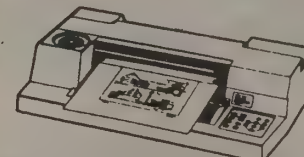
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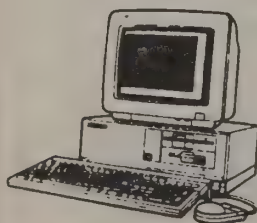


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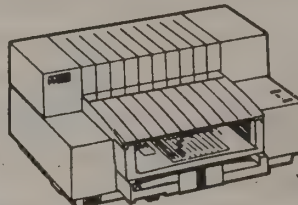
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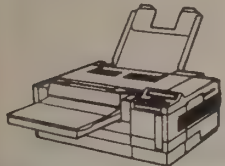
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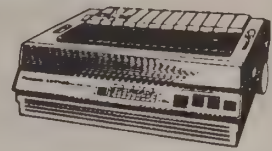
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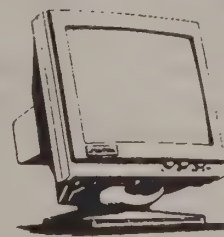


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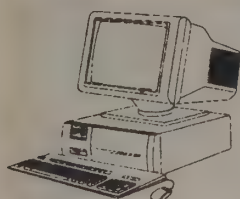
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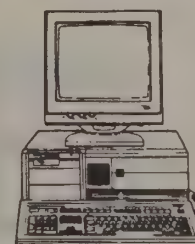
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Getting The Most From Your LAN's Memory

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BY WAYNE A. YACCO

A byte just won't buy what it used to any more. In the old days, mainframes only had 4K. If a system had 16K, it was damn near a super computer. You had no idea what you'd ever do with all that memory.

That's not the way it is today, because memory doesn't cost anything like a dollar a byte. Even many kilobytes, more or less, on each of several hundred workstations, only add up to a few inexpensive megabytes.

Nevertheless, there are some bytes that can bring back the old cost of memory with a vengeance. If a new network driver requires just an extra byte or two, the cost could go way, way over a buck a byte. Ask yourself this question. What's the cost to your company if you can't run the applications you need because they won't fit on your workstations?

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When it's conventional memory space we're talking about, a byte may be not merely expensive; it may be irreplaceable. Irreplaceable, that is, without the aid of memory management and some extended memory. When that network redirector pushes you beyond the pale, memory management can save the day—in several ways. It can remap upper memory addresses into extended memory. It may alternatively be able to recover built-in shadow RAM as upper memory. Then, it turns those upper-memory addresses into upper-memory blocks (UMBs), a neighborhood where a redirector, other drivers, and system resources can live the good life on far fewer bytes of conventional memory. Sometimes it can also move unused video-buffer space down into bonus conventional memory.

Even on an old 8088-based computer, without extended memory, there are products that can turn an old expanded-memory card into a resource. With a memory manager, application-memory problems are solved.

About the only things you can't do are have as much space in UMBs as you do in DOS, or continue to benefit from a memory manager once Windows starts in enhanced mode. Right?

Get real. I'm about to describe the miracle that lets you do both.

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NETROOM isn't as well known as Helix's earlier product, HEADROOM (a terminate-and-stay-resident program manager), but it's got some tricks of its own. Some of the other products in this category let you stuff as much as 211K of resident processes into upper memory blocks. Only NETROOM, though, makes virtual machines (VMs)—similar to the VMs that MS Windows makes—where you can stuff as much as 570K of your resident software.

NETROOM's VM technology, NETSWAP4, works by switching between a couple of different large EMS areas. One area can have your

DOS applications in it, the other your drivers and such. The only hitch is a baby glitch that slows things down when the two processes need to communicate with each other. As Helix president Mike Spilo explains, they can only talk to each other by saving messages to a third memory area that can coexist with both virtual machines. (Since the VMs use the same EMS page frame, they can't simultaneously exist with each other.) If you must load over 500K of resident processes, the extra overhead will cost between 10% and 30%, claims Spilo.

Of course, you can have a smaller virtual machine, over the upper memory area, that approximately doubles UMB space without inordinately slowing down tasks in conventional memory. Only a rare transaction between processes in UMBs will cost the extra overhead. That contingency can usually be managed.

Now for part two: When Windows starts in enhanced mode, the first thing it does is take over memory management, and put all varieties into a pool that it allocates as required by the tasks it manages. That control transfer is managed according to protocols in a Microsoft-supplied program called LOADHI.VXD. If you're not developing a memory manager with the very expensive Windows Device Driver Kit (DDK), you've probably never heard of LOADHI.VXD before.

**Ask yourself this question.
What's the cost to your
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NETROOM, however, does more than turn over control with it. NETROOM includes a virtual device driver (VxD) that not only runs under Windows, but performs privileged tasks there—it controls instantiating of processes and runs NETROOM's virtual machines inside Windows.

And here's where it gets real dark and scary—it lets them communicate with each other. According to Spilo, you can load your redirector high into one VM, and fill nearly the entire conventional space within Windows with DOS applications that will run on your network. Each of these NETROOM VMs runs in a separate Windows DOS session, but the applications can still send and receive network traffic to and from the redirector.

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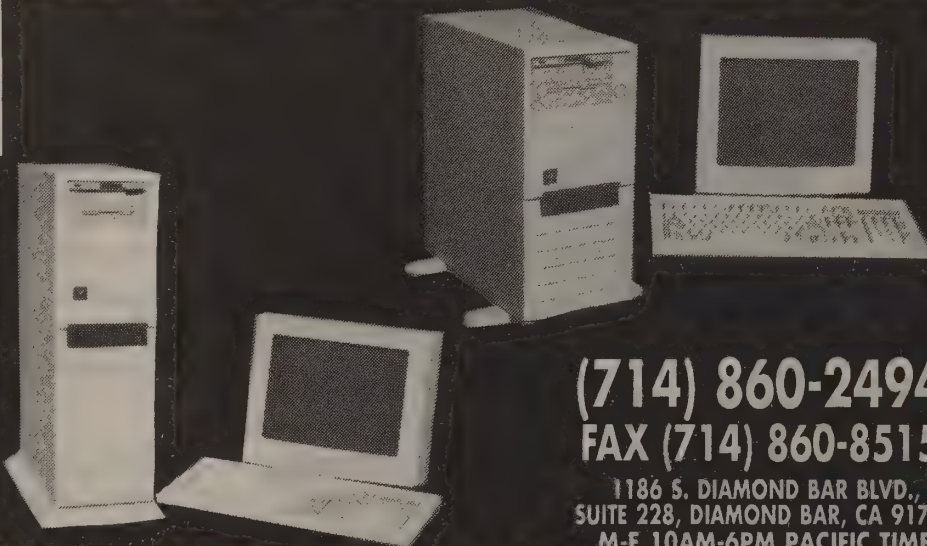
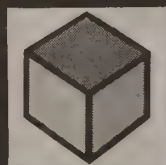
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SETUP program, that the network is not installed. But even though you can't attach network resources with the control panel, your DOS applications can still access them.

What about Windows applications? Here's what the manual says on page 31: "You will still be able to use Windows and NETSWAP4 to print and access network drives, but you cannot run Windows-based network-aware applications. For example, if you run a Windows networking utility, it will tell you that there is no network installed."

MEMORY AND WINDOWS LANS—CASE HISTORY

There's also that other method of memory conservation I mentioned earlier: adding memory from the video buffer to the conventional space. That's the only method that Fred Jennings, a corporate consultant on strategic-information technology, could find to get the memory he needed for four hundred networked Windows users.

Jennings supports the design and use of office technology for staff departments at SmithKline Beecham. A couple of years ago, when Philadelphia-based Smith, Kline, Beckman merged with Britain's Beecham, the two companies were running completely different hardware and software. The combined \$8 billion multinational was a company with computers that couldn't talk to each other.

So Jennings is developing a network that will eventually have twenty corporate staff departments in Philadelphia talking with each other, and with their counterparts in Brentford, England. The first step was bringing the stateside departments onto a single four hundred-user OS/2 LAN Server. Another three hundred US-based users will be added this year, and later this year, migration to the system will begin in England as well. However, there was a major obstacle. Crucial applications wouldn't fit into memory with the network drivers.

Jennings initially tried loading redirectors and other code into UMBs with both Qualitas's BlueMAX and Quarterdeck's QEMM. Neither was completely stable in SmithKline's environment: Windows 3.0, served by OS/2 LAN Server, and running on Micro Channel PS/2s (386SX or better) over Token Ring. "If we took one of the components out of the equation, we could recover a lot of conventional memory by loading high with any of those products," says Jennings. Unfortunately, when everything was running together, he couldn't find a manager that made him entirely comfortable. Preliminary research also indicated DOS 5.0 would experience the same problems. (DOS

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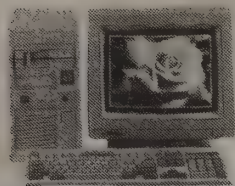


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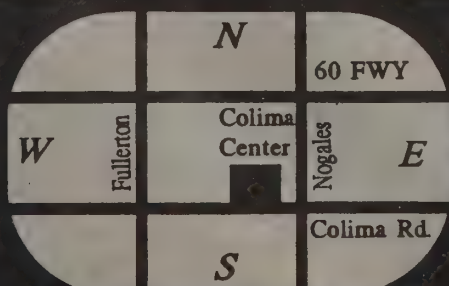
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BUSINESS SOLUTIONS

3.3 is currently in use on the nodes.)

He decided to stop using upper memory and find a solid replacement for HIMEM.SYS that would relocate the graphics portion of the VGA video buffer. "When all three were combined, it wasn't a case of loading anything high. It was a case of simply replacing HIMEM.SYS," Jennings says. He tried NETROOM because a financial

NETROOM worked for SmithKline's memory-critical line-of-business applications—character-based DOS applications developed in-house with COBOL/CICS, Paradox, and dBASE, running under Windows. The system must also support unknown personal Windows applications selected and installed by individuals.

institution he'd previously done work for had found HEADROOM to be very reliable. He discovered that "NETROOM was the only one we found that we could use reliably in our environment."

This approach worked for the company's memory-critical line-of-business applications. These are character-based DOS applications developed in-house—with COBOL/CICS, Paradox, and dBASE—that

are run under Windows. The system must also support Windows applications, some of them unknown personal applications selected and installed by individuals. The solution was to launch the DOS applications (in exclusive mode) with batch files, then restore the video addresses to the buffer before leaving the batch job and returning to graphics applications. NETROOM's VIDRAM utility did the job to Jennings' satisfaction. Naturally, NETROOM also manages extended and expanded memory outside of Windows, a need SmithKline has for a very few applications. The only complaint Jennings had was a sense that Helix, as a company, wasn't interested enough in his application of NETROOM.

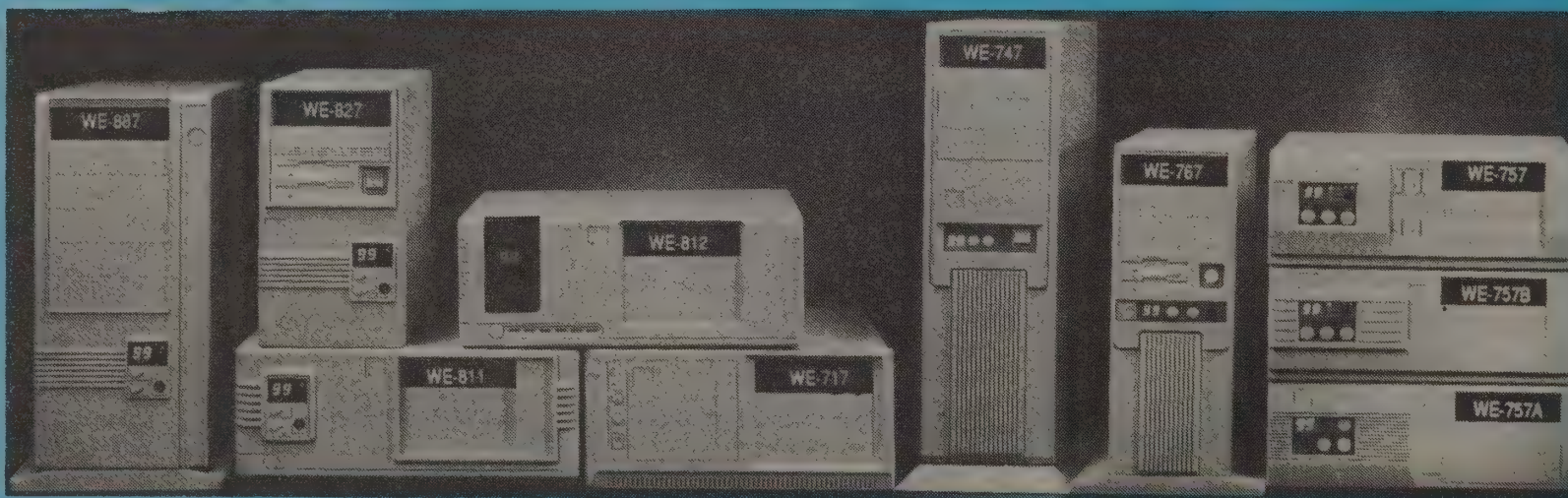
Of course, some LANs require more memory than video alone can supply, and others have problems that aren't a simple matter of memory. Although it isn't using NETSWAP, the New York City School Construction Authority in Long Island City is using NETROOM—both to steal conventional memory from the video buffers and to load drivers into upper memory. LAN manager Jorge Bittar says his 625 workstations are getting 602K after IPX and NETX are loaded on color EGA and VGA Compaqs running DOS 3.31. With the video recovery on monochrome systems, he's getting around 702K for applications. Bittar says his Novell 3.11 network is "working wonderfully. The performance is good and Helix has been very responsive for us in providing technical support for the minor problems we've had."

However, NETROOM's memory recovery wasn't the only reason Bittar selected it for his LAN. He also had a heterogeneous hardware environment that could have required supporting multiple products with some memory managers. "The reason that we selected this product," he says, "is that it allows us to use one product across all the different machines we have, both '286 and '386." ■

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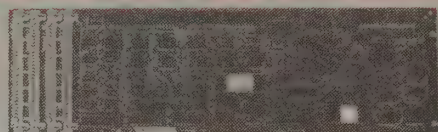
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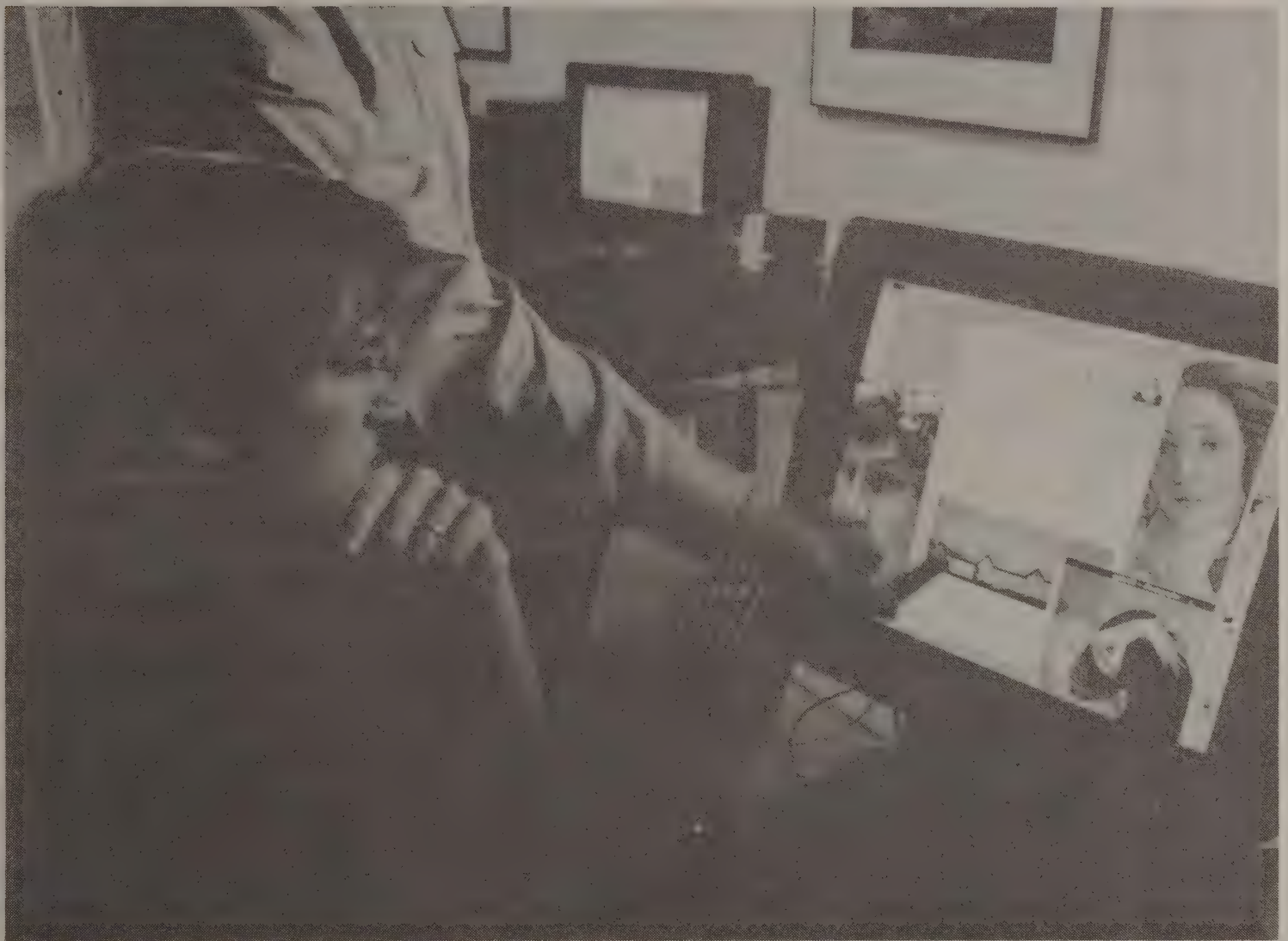
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At Last, NeXT Sells The Dream...To MIS

The MicroTimes Interview With Steve Jobs, Part One

PHOTO: TERRENCE MCCARTHY

BY JOHN
PERRY
BARLOW



One does not encounter many published interviews with Steve Jobs. Indeed, I've seen his picture on a number of magazine covers, only to find the lead articles within them barren of a single word directly from Himself.

There is a reason for this. While he is not quite yet the Howard Hughes of computing, it is easier to get an audience with the Pope than an interview with Steve Jobs. Nor is there any point in the process when one might feel he's got it nailed.

I can't blame him for being wary of the press. He is a Mick Jagger-class celebrity, and Global Villagers of this magnitude usually go a bit south. You would too if everyone you met focused not on you but on some virtual image, floating vastly above you like a Macy's parade balloon. (As Bob Dylan sang in "Idiot Wind": "People see me all the time and they just can't remember how to act. Their minds are filled with big ideas, images, and distorted facts.")

This problem is exacerbated in Jobs' case by the fact that there really *is* something compellingly, well, different, about him. For the last decade, the workings

of his complex personality have been like an Exploratorium exhibit on monomania; highly visible, well-annotated, and endlessly fascinating to gawking legions who have never actually met the guy.

Of course, Jobs would prefer these people look upon his works rather than whatever personal demons might drive him, and those around him, to produce them. After all, no one sits around psychoanalyzing SPARCstations for insights into Bill Joy's mind, nor have I ever heard a portentous word spoken about Ken Olsen's childhood.

But unfortunately for all concerned, it has become difficult to discuss either his companies or their products without talking about Jobs on a fairly personal level. In the past, this was not such a bad thing. What separated Apple from its many early competitors was largely a mystique based on the showier of its Steves. Both the Macintosh and the NeXT originally became objects of obscure desire due to something not unlike a personality cult.

But the mystique which once served him has lately been his principal liability. NeXT appears dominated by true believers whose devotion takes the form of

This interview will be completed in NeXT month's issue. Jobs will discuss chip choices, operating systems, standardization, multimedia, and what he considers to be his personal mission in life.

creating products, the greatness of which may be literally a bit insane. But in the process, they devote to the cult a lot of the attention which would better be directed at customers. Dale Carnegie would not dig this. And neither has the marketplace.

Which is a damned shame. In my opinion, the NeXT is simply the most powerful, versatile, and *deep* digital engine you can put on a desk. It is years ahead of its competitors in every area where they are devoting so many of their R&D resources: object-orientation, operating system, ease of programming, graphical interface design, interoperability, connectivity, and stability. It is unbelievably cool.

And that's the problem. A lot of people *haven't* believed it. NeXT, however committed to Steve's dream, has been unable to reveal it convincingly to the rest of the world. And so it is that the world's most elegant computer has only shipped some thirty-six thousand units since 1988.

Lately, as you will read in the following, this has begun to change. Sales have started to pick up. Corporations have discovered NeXTs and are beginning to use them to write the custom applications they once wrote on mainframes and then on the PC.

The swift spread of such news could make a big difference to NeXT. But Jobs' cavalier treatment of the press, however understandable, has earned him ill will of the sort they usually reserve for such as Richard Nixon. Most of the journalists who might otherwise carry the new message are too irritated to give him the satisfaction.

By the time the following conversation took place, I was in a pretty dyspeptic mood myself. Nor was Jobs all that happy with me. Frustrated by the apparent absence of any coherent approach to marketing and sales at NeXT, I had electronically circulated several rants on the subject, elevating temperatures inside and outside NeXT.

He emailed me, telling me that I was "all wet" but failing to elucidate further. I told him that the best way to set me (and other similarly wet individuals) straight would be to give me an interview. To my surprise, he agreed.

Two days before the interview, after I had bought a nonrefundable ticket from Wyoming, he cancelled. Then he changed his mind again and I flew to Redwood City. There he kept me and my "second," *MicroTimes* editor Mary Eisenhart, waiting for forty minutes before he bounced in and told us that he could only spare us twenty of the ninety minutes we'd been promised. But not to worry. He could "talk real fast." (Which he most assuredly can.) As it turned out, he stayed put for nearly an hour, but, by this opening gambit of evasive zigs and zags, he managed to put me irretrievably off balance.

So there was little I could do to prevent him from "playing his tapes" at me. This was unfortunate, because much of what he says about changing NeXT fortunes is more plausible than it may sound in the following...or would have sounded if he'd been speaking less automatically.

I think he has rediscovered a huge market: Son of dBASE, custom workstation apps for MIS. Like Jobs, I imagine small groups of networked guerrillas roaming the corporate steppes of Cyberspace, continuously conjuring up new tools of the moment from their NeXTs. While he may be, as usual, dangerously ahead of the curve, Steve Jobs is once again onto something. I'm not surprised.

Whatever his personal wrinkles, I think this guy really *is* a genius. Difficult and elusive, there remains something quite winsome about Steve Jobs. He can make you nuts, but this is not entirely unpleasant.

The interview is printed in two parts, the second to appear next month. In the first part, we primarily discuss NeXT's brand-new marketing strategy, arguably the first credible one it has ever had. While there may be some perils to their new approach, I do believe that they are at last about to move a lot of boxes.

Radiating energy, Jobs plants one bobbing knee on a chair across from me and begins:

You want to talk about our marketing strategy? Good. I want to talk about that too, since you're confused.

I want to start out by telling you that I'm on your side.

Oh, I know that. Even if you're kicking us in the butt, I know it's

An art director at an ad agency is writing a custom NeXTstep app that logs onto the SABRE system automatically, grabs the data, typesets it automatically into the app, sends the different schedules onto the network around the country, and prints them locally at the local cities.

because you want us to win.

But I have questions that I get asked all the time, and rather than putting myself in the position of trying to second-guess what your answers would be...

The only thing I would say is... since we don't have the largest marketing budgets in the world to run advertisements, there are a lot of times when we learn something, and we shift our strategy, and it actually will be working in the marketplace, but there's a lag of several months before people catch on. So sometimes people's impressions are a little out of date with what's really going on. We can use this as an opportunity, I can tell you what we think's going on.

Well, all right, since we're already there, let's talk about current marketing strategy at NeXT.

Maybe the best way to explain it is with an analogy I've used before that seemed to work: Believe it or not, when we did the Macintosh, we never anticipated desktop publishing. We didn't. We put the bit-mapped display in place, we put the printer in place, but we never anticipated PageMaker.

We weren't smart enough. But we were smart enough to see it happening nine or twelve months later. We seized that, and we changed our whole business strategy to focus on desktop publishing, even though the Mac was quite good at other things too. Desktop publishing became the Trojan Horse that got Macs into corporate America, and it was successful.

Jump to when we created the NeXT computer. When we created our computer, we did not initially view it as a workstation because of the blinders of our history. We viewed it as more of a PC on steroids, if you will, than a workstation. Maybe more important, even—when we created NeXTstep, the goal was to make it be five to ten times faster to create applications on NeXTstep than anything else.

[Someone once compared conversing with Steve Jobs to sipping from a fire hose. At this point, I began to see what they meant.]

That was clear at the time.

That was clear, and I think we succeeded at that. But the target customer for NeXTstep, the beneficiary, was the shrink-wrap third-party software developer. The Lotus, the WordPerfects, the Adobes. And indeed it worked. We have a joke: The good news is we have the third-best suite of productivity apps in the world. The bad news is we have the third-best suite of productivity apps in the world. *[laughs]*

But we really have an incredible investment in software. And tons of packages shipping, two hundred and something of them now. Much more so than any other workstation. We blow Sun's productivity software suite away. Even if you compare us to the PC and the Mac, we now actually have best-of-breed apps in most categories. We have the best version of WordPerfect, and yet compatible with all the others. We have the best version of Adobe Illustrator. We have the best version of this and that. With Concurrence we have the best presentation program now. So we're not doing bad.

You have other applications that don't exist anywhere, like Diagram, which is an extraordinary piece of work.

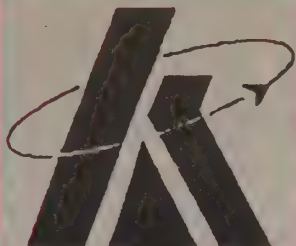
Or like the Boss Logic stuff.

So, anyway, it basically worked...

But an interesting thing happened. When we started selling a lot of our second-generation product, the NeXTstations, this year, we turned around in June and said, "Who's buying all these?" Because remember last year we were 80% higher education. When we turned around in June, the majority of our customers were large- and medium-sized corporations.

And we said, "Why are they buying it?" We went and asked them, and it was very clear. They'd discovered NeXTstep. And they were using it to write their in-house mission-critical custom apps five to ten times faster.

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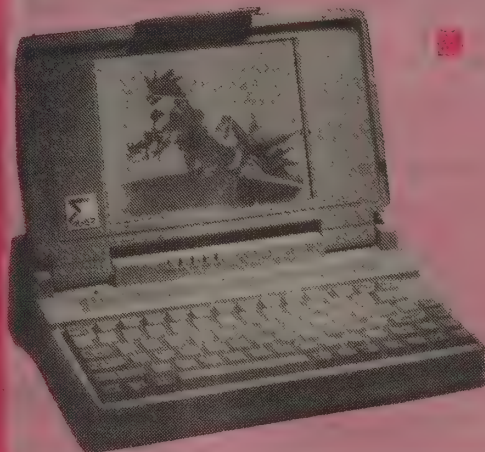
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This was a discovery, not a plan? Really?

Oh yeah, absolutely. It was not a planned thing.

The concept that all big companies have a ton of mission-critical custom apps they want to write—that they're all downsizing off of mainframes and that they all want to write them on these desktop platforms now—was something that never occurred to us.

Well, gee, there's been a hell of a dBASE market for a long time now...

Right. Well, when we started thinking about it, within a month it became obvious. People used to write custom apps on their mainframes and their minis. Along came the personal computer, and rather than wait three years for your MIS department to write something, you could write a little bit of it yourself, using 1-2-3 macros and dBASE. The problem was that kind of ran out of gas a few years ago, topped out. And one could ask the question now, "What do you do now to get competitive advantage when all your competitors have PCs on their desk too, and they can buy the same shrink-wrapped stuff you can?"

The answer is to write a mission-critical custom app!

We weren't smart enough to see this. Our customers taught us this. We have redone our entire marketing strategy this summer, the August-September timeframe, to focus on mission-critical custom apps. And that is our Trojan Horse that is getting us into corporate America.

Now when we first explained this to our third-party application developers, their initial reaction was to freak. They thought, "Oh my God, you're abandoning productivity!" Turned out that it couldn't have been further from the truth. What happens is that we're now selling NeXT computers in clumps—the smallest clumps are usually like twenty-five, the largest clumps, we just closed our first order for over a thousand systems. And we have a lot of clumps that we sold for hundreds of systems, one to five hundred. We get orders for one to five hundred systems now, routinely.

Well, guess what? All these customers want a bag of productivity apps to go on those several hundred systems, which can interoperate with their custom apps. We've got one customer down in LA who's buying a thousand copies of about six or seven apps. You should see all the developers lining up—"What do you need to do to make mine one of them?" So our app developers have been more successful in the last six months than they've ever been. Jumping out of this Trojan Horse, if you will, once we get it in there.

What we've seen is that even though our apps may be 50%, even 100%, better than what you can get on a PC, you need something that's even more of a compelling advantage to get people to switch. Being twice as good ain't good enough.

People are willing to go on dancing with the devil they know for a long time, or DOS would not still be the standard.

Right. And they're willing to listen to how this other company's going to have this in two years, why not wait, blah-blah-blah.

So what we found is that with mission-critical custom apps, we're not 50% or 100% better, we're like 1000% better. And it's over that threshold where somebody's willing to take a gamble on us as a young company, because we're five to ten times better. And that's what's getting us into these big accounts, and that's who's then buying all the productivity software.

So our business has flip-flopped. We're only about 25% higher ed now. We're 75% commercial and government.

Okay, but I guess I still have a couple of concerns here. I agree with you that this is a good way to go, it makes a lot of sense, and it has the advantage of being a Trojan Horse that heads in through the front office rather than the art department.

That's right. We're getting called in by the CIOs of these companies.

Which is a new experience. [laughs]

Right. But I'm trying to figure out where that's going to leave the individual customer. There are a lot of people who are disaffected with IBM's latest Macintosh, and are really anxious to try something else. I feel that this is a market that is not being addressed at this point.

Wellllll...I think you're right.

We saw Apple start off with individuals and then pound on the door of corporate America and gradually get in a little bit through the back door. They're not even in that far now. But they got in through the back door.

We saw IBM walk in the front door of corporate America and not pay any attention to individuals, and gradually over time grab the dominant share of individual use.

So our path, for good or bad, is going to be more like IBM's. We're going to get our company very successful by selling to corporations. And then hopefully as we can drive the prices of our products down over time, we can become more desirable for individuals.

We still do have a very strong commitment to higher education, however, and we still do sell our products at a pretty deep discount to higher ed. We're doing very well there.

The other thing that's happened is that in our industry we've seen radical changes in the distribution channel. What happened was that the dealers...

Which are a moribund species, I think.

It's over. What happened, though, if you go back and analyze it, was that corporate America needed the dealers five or six years ago. They didn't know much about PCs, they didn't know much about networking. The dealers helped them a lot, and the dealers, you know, charged for that. And there were some companies like Businessland that even built their whole business just focusing on that.

They didn't actually add much value.

Oh, I think they did, five or six years ago. I think they did. What happened was, the MIS departments started hiring really smart people. I used to joke about how bad they were. You go to them now—they're full of really bright people.

These people had the advantage that they were paid a little more than the dealers, so they didn't turn over much. They knew a lot about the internal workings of the companies, and the dealers didn't, and they were generally quite smart. So one day the purchasing manager at a big company woke up for the first time and said, "Why are we paying for support twice? We're paying our internal group, and we're paying this dealer." And they changed their priorities for purchasing PCs to price, price, price.

And all of the margin got driven out of the dealer channel, which meant that all the people who knew how to create demand—like go give a good demo, tell you how to make it work when you had a problem—these people left, because the channel couldn't afford them. The channel became demand fulfillment, versus demand creation and fulfillment.

What's happened now is, since the channel's become just fulfillment, somebody woke up one day and said "Why can't we do this over the phone with Federal Express?" And in my opinion, all of the demand fulfillment is headed towards mail order.

So why can't NeXT do that?

Well, let me keep going.

All the demand fulfillment is going to be in the Dell model. Tele-business. In my opinion, superstores are just a pit stop on the way to telemarketing. I don't even see a reason to have a superstore. Why get in my car and drive somewhere and pick it up when I can have it delivered to my house tomorrow?

So I think that the channel has been decimated, and that all com-

When we did the Macintosh, we never anticipated desktop publishing. But we were smart enough to see it happening nine or twelve months later. We changed our whole business strategy to focus on desktop publishing. Desktop publishing became the Trojan Horse that got Macs into corporate America.

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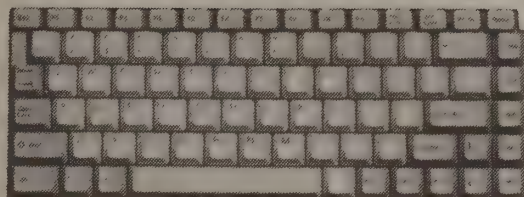
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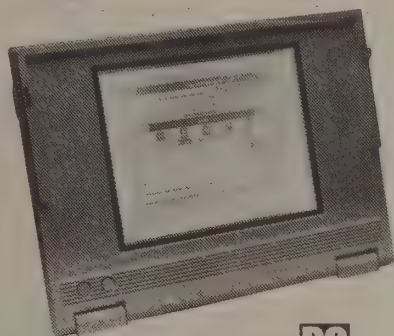
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modity products will be fulfilled through telebusiness.

Now the big question is, what about innovative new products, where demand still needs to be created? You can't create demand through telemarketing. You can't create demand in a superstore. You can't even create demand much in the existing few dealers that are left.

Especially for a product like yours, which is an environment. You have to actually experience that environment.

You have to have somebody show you.

And you have to be there for a while.

Right. Yes. I agree. And you have to have a little hand-holding while you make the transition.

The learning curve has a cliff right at the bottom, but it's actually a pretty smooth climb after that.

Right. I agree. But how do you create demand in a channel that's purely optimizing for demand fulfillment? We saw Compaq come out with their SystemPros and fall right on their face. Because even their dealers, which were some of the best ones, couldn't create demand any more.

Well, I think the answer, for good or bad, is a direct sales force. We saw Sun grow a three billion-dollar company in the last five-six years, off a direct sales force creating demand for their products. And our model of selling has changed—we are selling our products primarily with our direct sales force. We have 120 professionals in the field.

So it sounds as if I've been trying to get you to do something you're already doing. I'm trying to convince you to sell direct, and you're going to direct sales.

We are. We have fifty reps, fifty SEs, and twenty management people and support people in the field. And that's how we are selling most of our product today.

Now the direct sales people don't all have to work for us, so we're signing on VARs, who have direct sales forces, to augment our direct sales forces. And we then have some high-end dealers, almost VADs more than VARs.

We did a really smart thing. We commission our direct sales people for any product that lands in their territory, no matter what channel it came through. So they can sell it themselves, a VAR can sell it, or a dealer can sell it. They make the same amount of money. So when they get an order for ten, twenty systems, they call up the dealer and give it to them. Because they don't want to take their expensive time, they'd rather go focus on a hundred-unit order.

So it's actually working pretty well between the dealers and the VARs and our direct sales people, because we eliminated channel conflict.

Okay, but what happens if somebody calls me up—as they do like every other day—and says, "Where do I buy a NeXT?" And they're calling from Pittsburgh, and I don't know if there's a dealer in Pittsburgh, and chances are if there is, he doesn't know what the NeXT he's selling really is...

I guess the corollary to this question is: What does somebody who is a devout NeXT user and advocate do to help NeXT? I see a great deal of frustration and disaffection in the NeXT user community, which is about as rabidly devoted as anything I've seen outside a religious group, and they just don't feel like there's anything they can do.

Well, to make NeXT successful, we've got to make NeXT successful in corporate America.

You're probably quite right about that, but I have one caveat. As Mitch Kapor [founder of Lotus] learned, eventually a company resembles its market more than its maker.

[Long pause. He smiles thoughtfully.]

We're going to get our company very successful by selling to corporations. And then hopefully as we can drive the prices of our products down over time, we can become more desirable for individuals.

We'll see.

We'll see.

And I guess I've met a lot of people in corporate America that I wouldn't mind NeXT resembling. There's a lot of good people out there. As an example, there's a company called O'Connor that has hundreds of our machines; they're in Chicago. These are a bunch of young bright kids who have gone and outperformed almost every old-line firm in the financial services industry. They are great. They look like us, they talk like us, they live in Chicago, they started this commodities trading firm, and they cleaned up in their industry by bringing technology into that.

Well, look, I'm a Republican. I don't have a knee-jerk reaction to business, but there are elements of the corporate environment that... You actually led a revolution that empowered individuals in corporate America...

Mm-hm.

...And I keep worrying about the possibility that the network is the mainframe's revenge. That you're going to be leading the counter-revolution whether you want to or not.

No, I don't see it that way. We make computers that you can disconnect from the network any time you want.

But I guess I view the network as so important now, that it's just becoming ubiquitous. And the reason is because computers are being used more and more to communicate than they are to compute. Just like we burned a ton of CPU cycles to make the user interface great on Macintosh, we're burning a ton of CPU cycles now to help people communicate. That's profound to me, and I don't think it's bad.

I mean, I subscribe to a lot of your ideas. *[Referring to the Electronic Frontier Foundation.]* It's got to be open, it's got to be pervasive, and there can't be economic barriers to people hooking onto this network. But I think the network, the concept of the network to connect us all together with the right tools, is definitely the next big step in our industry.

Well, I agree. I suppose my main mission is to connect everything to everything else.

Right.

So I don't see that as the mainframe's revenge. I don't.

But there remains a sort of totalitarian potential in networked computing that concerns me...

Well, I view it as very important that you always ought to be able to go off under a tree by yourself with your computer and do something. But I don't think it's going to be very long before your computer's got to have some radio net or something in it, because it's going to be impossible to do anything without being hooked to that net. Sort of like having a telephone that's not plugged in, that's not a cellular phone, and going out and sitting under that tree. It's just not going to be too useful.

Another aspect of your marketing strategy which concerns me is that I wouldn't want to see the SIGGRAPH bunch left out. Or the music types. There's a wonderful hybridization that takes place between the nerds and the artists—more juice there than anyplace else in this culture.

Well, look at our actions, and I think you'll see we're not leaving any of that stuff behind. I think Wall Street's going to love [Pixar's] RenderMan, but we're doing it for a lot of other reasons than that.

Still, I wouldn't want to see this elegant thing become the faithful servant of MIS and nothing else.

Right. But you should see the people buying these things. Let me give you an example that's kind of not too traditional.

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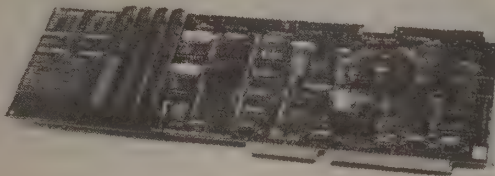
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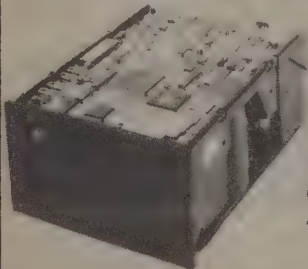
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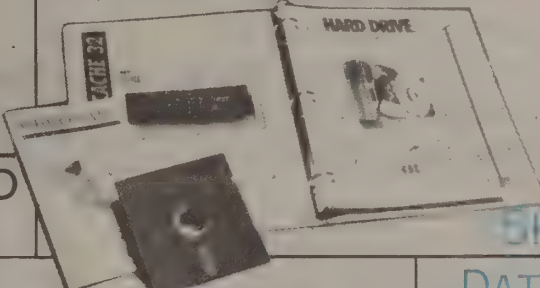


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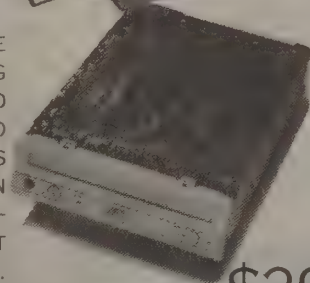
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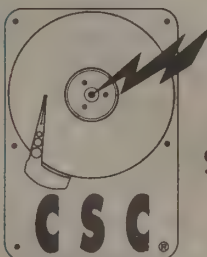
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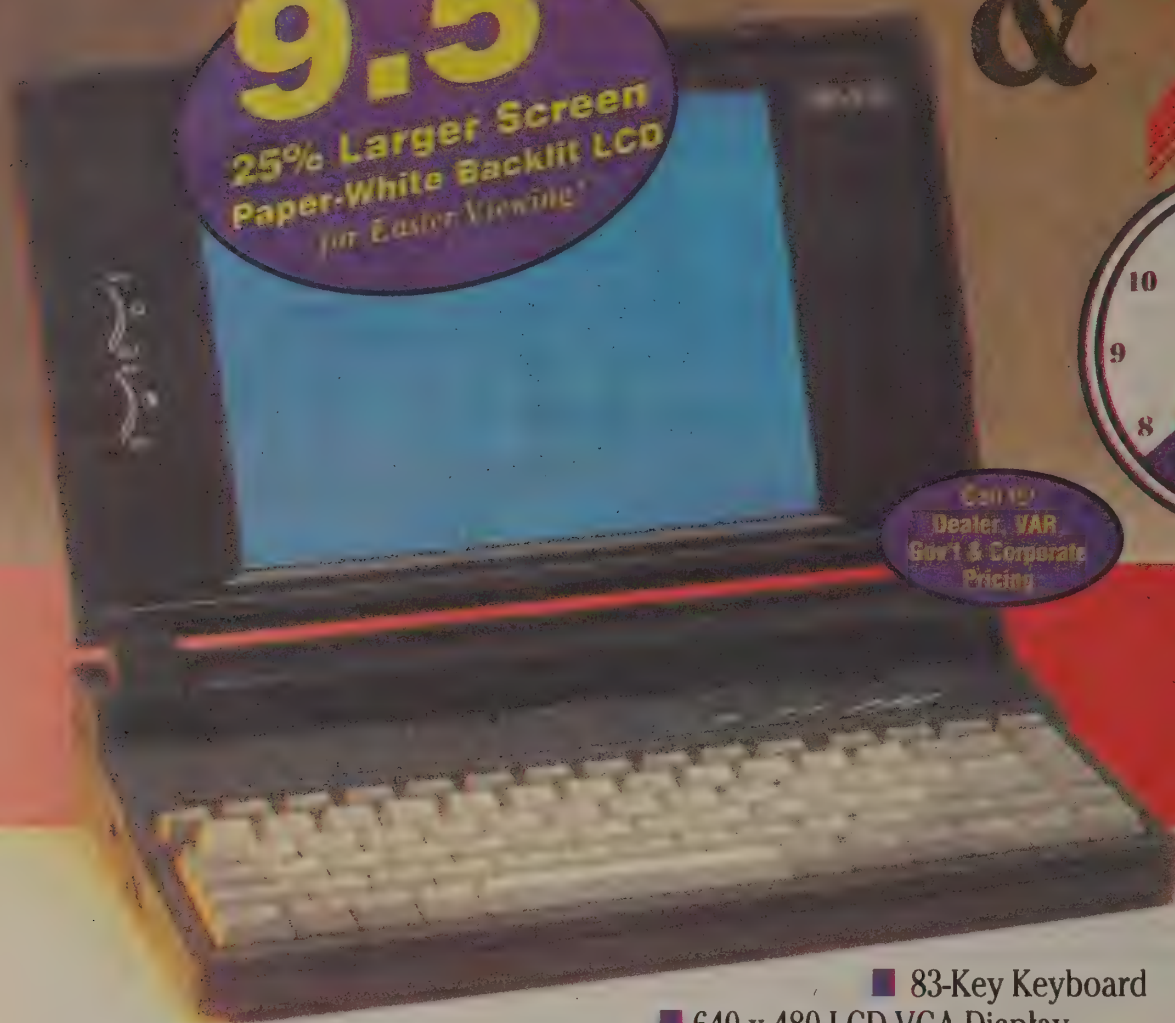
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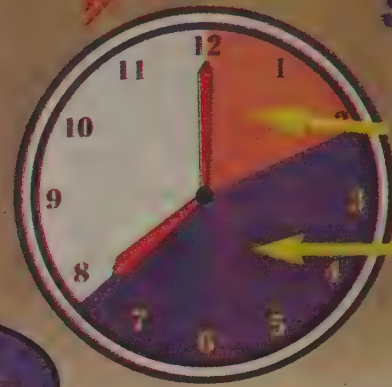
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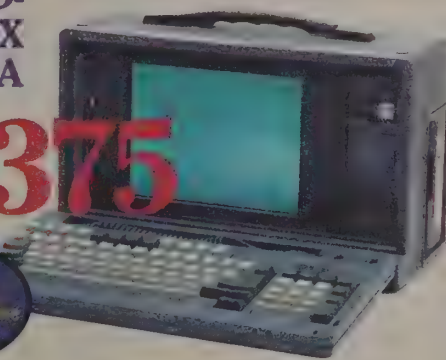
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Online Systems

Which One's For You?

BY BROCK N.
MEEKS

There's an old adage that in order to avoid conflict you don't discuss sex, religion, or politics. But in my life experience, I can safely add two more items: Don't tell anyone how to raise their kids and never tell someone that the online system they use is not as good as your "online home."

Online services are, for all intents and purposes, matters of personal choice—very personal choice. Sometimes people stay with a system because it's the first one they ever log onto; online loyalties die hard.

Sometimes the choice of an "online home" boils down to what can only be described as "feeling." On a huge system such as CompuServe, the system can feel impersonal; on a system such as Delphi, there is more the feeling of a small town.

The article that follows is intended to provide you with a glimpse at

FIRST OF A SERIES

some of the "other" systems that are out there. A brief glimpse is all that's possible here; surely, a book could be written about any of these sys-

tems. Indeed, for several systems there are books dedicated just to "getting the most out of" them.

How do you choose among these systems? Well, you can always armor-plate your self-esteem and go asking for suggestions, or you can follow your instincts, bolstered by the words of reviews like this one, and just choose. If you don't like a system, you can always change your mind...in a virtual sort of way.

COMPUSERVE, INC.

5000 Arlington Centre Blvd.
PO Box 20212
Columbus, OH 43220
800-848-8199

CompuServe is the cash cow of the online industry. Forget those rumors you've heard that its parent company, H & R Block, has it on the auction block. CompuServe made money—lots of money—for Block; the CEO of CompuServe draws a paycheck in the mid-six figures. Yeah, it's doing all right.

CompuServe Information Service (CIS) is widely derided among the online community as being too expansive and too expensive, hence its oft-used "nickname" C\$. But it's all a matter of perspective.

CIS is the flagship of the US videotex industry. And it's proven there is strength in numbers. In fact, just a few years ago CIS acted like its bigger Wall Street brothers when it gobbled up its closest competition: The Source. (These were the pre-Prodigy days, and The Source was then the second largest commercial online system in number of subscribers.)

If CIS were a city, it would be New York. There is something here to suit anyone's hobby, interest—or fetish, for that matter. For example, transsexuals have their own support forum; virtual cross-dressers often meet online in the "CB" conference, CIS's real-time conferencing section.

Hundreds of Special Interest Groups (SIGs) break CIS into smaller boroughs, much like you'd expect to find in New York. Each SIG has its own flavor. When you log into the Journalism forum you'll find hard-core journalists talking about current events, the newspaper (or broadcast) markets, and the ethics of revealing the names of rape victims. In the Photography forum you'll find people discussing ways

to shoot landscapes, what the best film speed is to use for sporting events, and whether or not the latest round of automatic 35mm cameras are taking the skill out of being a photographer. All this is to say that "you get what you expect" from these SIGs.

Within each SIG is the file database. This is where you can pan for online gold and find it. In these file databases, subscribers park their shareware programs. And there are literally thousands of them online. The downloading of files is one of CIS's biggest revenue generators. Searching through the databases used to be time-consuming and frustrating, but within the last year or so CIS implemented the "file finder." Using FF you can simply type in the name of a file, or keyword; the FF software searches every file database for a match. Not only does this little gem work well, it works fast. It's a real plus for those not wanting to wade through individual SIGs or get bogged down slogging their way through hundreds of irrelevant files.

The SIGs operate with sequential message storage software, which reminds you of early-model BBS software. The SIGs rack up hundreds of messages a day and a message seldom lasts more than 24 hours before it "scrolls off" the SIG message base. It's always been a complaint of mine that CIS never saw fit to incorporate the use of true computer conferencing software. But as one CIS executive told me years ago: "People keep logging in and spending money; why should we shell out the money to revamp the system when the customers seem happy enough?" Well, a captive audience and all that...

But even this complaint is no longer valid; when CIS bought up The Source it also brought on board The Source's computer conferencing system software, called "Participate." CIS now widely touts its conferencing software as a "host your own forum" feature. In reality, it's where most of The Source "refugees" (those former Source subscribers who "inherited" a CIS membership) hang out.

Besides the "people" side of CIS, there are a host of "services" here, too. You'll find the discount brokerage firms of Quick & Reilly and Max Ule, Inc. here. Analyses of companies and industries are provided by Standard & Poor's Disclosure, Value Line, and the Institutional Brokers' Estimate System.

Several information research services are also found on CIS. IQuest provides a gateway to more than nine hundred additional databases that draw from heavyweight systems such as Dialog, BRS, NewsNet, and Vu/Text. This saves you from having to subscribe to each of these separately. Not only does this save you money, but time as well. IQuest has an easy search system, and you only pay for the items that IQuest finds; if you get no "hits" on your information search, you don't pay. This isn't an option if you search one of these systems individually.

There's a good selection of news services here, too. UPI News, AP, and the *Washington Post* are available online. CIS runs its own daily computer news service called "Online Today" that routinely covers the hottest items in the computing industry (but don't look for any negative coverage of CIS itself).

Of course there's the standard fare of automatic banking, color weather maps, digitized picture gallery of other CIS members, airline ticket reservation, lots of interactive games, and of course, the electronic shopping mall.

Basic connect rate: \$6.00/hour (300bps); \$12.60/hour (1200/2400bps); \$22.50/hour (9600bps). These rates are good twenty-four hours a day. These prices don't include "surcharges," which are found on about 10% of the offerings. (A surcharge is an extra cost above and beyond the basic connect charge.)



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AMERICAN PEOPLE/LINK

165 North Canal St., Ste. 950
Chicago, IL 60606
800-524-0100

People/Link, or "Plink," as the subscribers here fondly call the service, is more a niche system than anything else. It used to advertise itself as a place to "escape" the day-to-day rat race by logging on and "adopting" an alternative personality. Ads showed a mild-mannered accountant turning into "Indiana Jones" (or Tom Jones for that matter) simply by turning on his modem.

Most of the subscribers are "old timers" who feel comfortable with the service, not unlike WordStar 3.3 users who refuse to use another word processing system because they "grew up" using and learning WordStar.

P/Link has forums to discuss your hobbies, sports, or computer problems. The range of forums isn't as extensive as CompuServe, but few, if any, match CompuServe. And indeed, P/Link makes no apologies for not being another CompuServe; they don't want to be. They foster the "small community" atmosphere and the subscribers enjoy it.

P/Link can boast one of the largest and most current databases of software dedicated to the Amiga. The public domain selection of software for the Amiga on P/Link is a major drawing card for a large segment of computer owners (Amiga) who often feel slighted by other online systems. Several hardware and software vendors dealing with the Amiga are also found on P/Link.

The system includes the basic services: email, real-time chat modes (the place to be "Indiana Jones," or "Bon Jovi" or "Jerry Garcia" for that matter), shopping services, and "book your own" airline seat service.

Evening and weekend pricing: \$5.95/hour (1200bps); \$9.95/hour (2400bps); \$18.00/hour (9600bps). All rates during weekdays, regardless of modem speed, cost \$17.95/hour. There's an 800 access number that runs \$12.00/hour for any speed day or night.

BRS: AFTER DARK

BRS Information Technologies
8000 Westpark Dr.
McLean, VA 22102
800-995-0906

After Dark is so named because the system offers you a discount rate on nights and weekends. The system is highly specialized in that it focuses on information retrieval; if you want to don a virtual personality, check out a system that has real-time conferencing. Use BRS After Dark when you're digging for facts, not fantasy.

The system hosts more than 150 separate databases. The range of topics covers business, medical, scientific, and technical information. The databases are constantly updated—a contractual condition specified by BRS. This makes BRS an extremely useful and timely resource when trying to track down that elusive piece of information.

The system has the added plus of being menu-driven. For those not yet initiated into the "info-search" wars, using a menu-driven system is a godsend. The menu system (commonly referred to as a "front end") is touted by BRS as requiring "no computer expertise and no more keying proficiency than a pocket calculator." That's marketing hype and half true. There isn't an online system in existence that doesn't require some computer expertise—after all, you have to be able to boot that comm software and somehow figure out how to connect that modem to the RS-232 port, don't you? The line about the keying proficiency is a copywriter's throwaway; how difficult is it to punch a return key?

True, you don't have to have a master's degree in library science to use BRS After Dark; the menu system leads you through your search with plenty of prompts (experienced users can bypass the menu,

making use of command "shorthand").

The system charges a one-time subscription fee of \$75.00. Monthly minimum charge is \$12.00 whether you log on or not. Connect time charges range from \$10.00 to \$25.00 per hour.

BYTE INFORMATION SERVICE (BIX)

Byte Magazine
One Phoenix Mill Lane
Peterborough, NH 03458
800-227-2983

BIX was the first online system to legally distinguish itself as a "publication" rather than a videotex system. Indeed, the head honcho at BIX has "managing editor" printed on his business cards. This was a calculated move by BIX from the beginning in an effort to thwart some of the sticky legal grey areas surrounding electronic text.

If BIX is a publication and legally classified as such, then the "editors" can do with the text as they see fit. What that really means is, if you put something offensive online, the "powers that be" can yank it—or modify it—without having to give you so much as a minute's warning. And when you sign up for BIX you have to acknowledge this fact and sign on the dotted line that you accept these conditions.

Now, all that might sound overly harsh, but in practice, the folks at BIX aren't anywhere near as heavy-handed as that. It was actually BIX's parent—McGraw-Hill—that insisted on such maneuvers; the legal department at McGraw-Hill simply didn't know how to handle this animal called BIX, so they did what lawyers do best. They shoved BIX into the legal equivalent of never-never land.

History aside, BIX carries the most technically astute online populace in the world. (I'm talking commercial online here; we all know that Internet is where the real heavyweight techies hang out.) In addition to the subscribers it draws from the US side, BIX has an admirable number of foreign subscribers. Most of these are drawn from their long association with BIX's hardcopy counterpart, the venerable *Byte* magazine.

Each of *Byte* magazine's authors and columnists can be reached directly on BIX. If you have a gripe about a column or article, BIX is the place to bitch, right to the source.

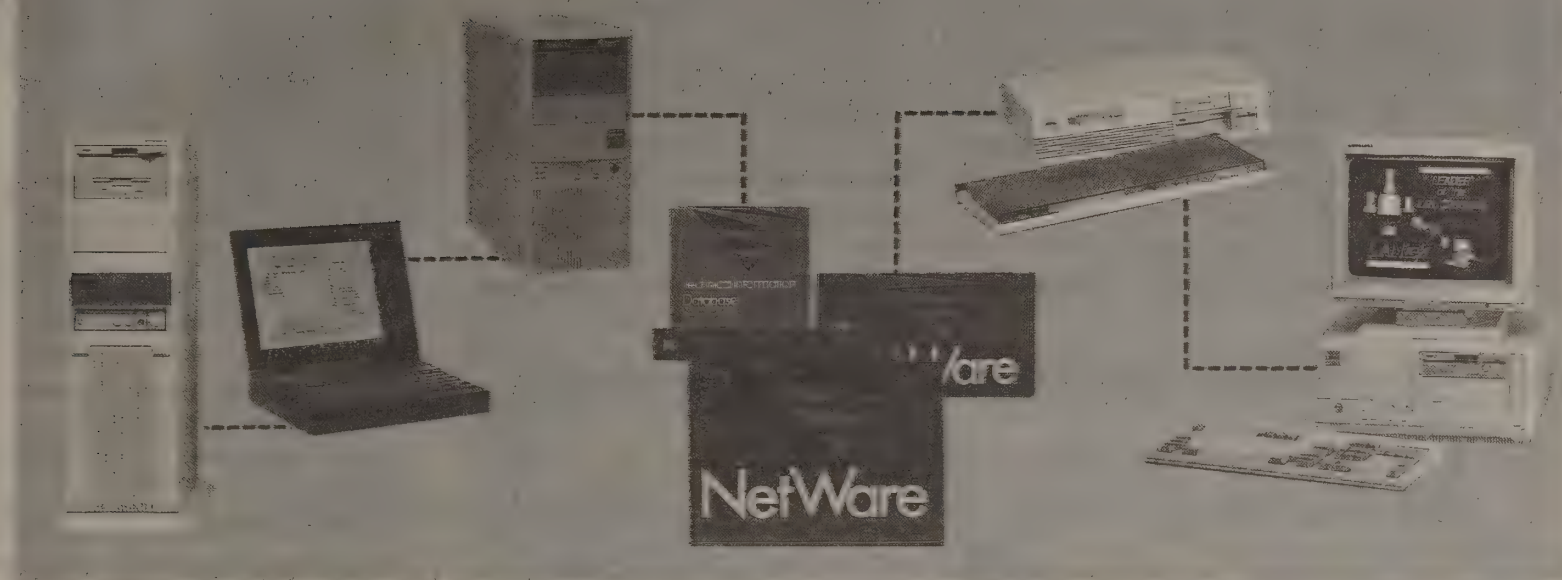
BIX has hundreds of conferences that are further broken into topics. For example, the BBS conference is splintered into topics such as "issues," "sysops," "TBBS," "Fido," and others. The software that drives BIX is a robust, highly modified computer conferencing system called CoSy (though it hardly resembles the original version of CoSy). Within each conference there is a file section—called "Listings"—where you can upload or download shareware software.

On a system with such extensive technical savvy and subscribers, you'd expect the Listings section to be outstanding, both in quality and innovation. In truth, these Listings are usually just a rehash of previously released software, and hardly ever any kind of innovation is represented; if you're looking for software, you'd be better off looking to CompuServe or one of the nation's powerhouse BBS systems (such as Exec-PC).

But if it's technical information you need, look no further. BIX is the place to leave your query. But don't stop at just technical information. Need to know if that alternative universe you've created on your word processor in your spare time is actually viable? Head over to the science fiction conference or maybe join in on a conference headed by the irascible Jerry Pournelle for a candid opinion of your creative talents.

BIX also has a real-time conferencing mode. The editors on BIX work hard at providing big names from within the computer industry for special weekly "chats" online.

BIX also runs the award-winning *MicroBytes Daily*, a daily news service of what's happening around the computer world. Here you'll



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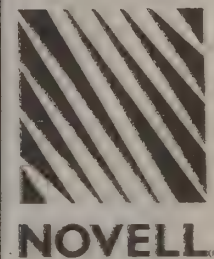
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You can reach BIX via BIXnet by calling a local telephone number and paying \$2.00/hour from 5 pm to 8 am on weeknights and weekends. The cost is \$6.00/hour weekdays; the prices are for all speeds up to 2400bps. You can dial direct long-distance to BIX and pay \$39.00 per quarter for unlimited use. For access via Tymnet in the US the cost is \$6.00/hour (prime time) and \$3.00/hour (non-prime time). Or you can get unlimited non-

prime time through Tymnet for a flat fee of \$20.00 per month.

DELPHI

General Videotex Corporation
3 Blackstone St.
Cambridge, MA 02139
800-544-4005

Delphi's had more lives than a cat. I can't count the times over the years that I've heard "Delphi is going out of business." The fact that it hasn't is due to the tenacity and loyalty

of its subscribers. And the fact that Delphi has the uncanny knack of being the online system of choice for "videotex refugees"—people that have either been jettisoned from another system because it's gone out of business, or who have moved to Delphi because they've simply tired of a larger system, such as CompuServe.

Consequently, it's not unusual to find former members of The Source and CompuServe holding court here any night of the week. For years Delphi was the "other place" to subscribe if you didn't like CompuServe or The Source. It ran a distant third; with the proliferation of online systems today, it can't even claim a membership one-tenth the size of CompuServe's 750,000. It can, however, boast a membership from more than forty countries.

The services here are what we've come to expect from a commercial online service: email, computer conferencing, telex, fax, real-time conferencing. Delphi also has SIGs; the most popular are those for the PC and Macintosh. There is a substantial collection of public domain software for both types of computers. SIGs also exist for lots of other interests, including writers, photographers, science fiction, and more.

Financial information on Delphi is designed to appeal to both business users and individual investors. Stock and commodity price quotes are available, as well as stock prediction models such as TrendFast and Security Objectives Services. Several of Delphi's investment services can also be made available directly from local area networks via InfoLink.

Delphi also has multiuser online gaming facilities. Multiplayer competitions are waged in Poker Showdown (five varieties of the game). If nobody sits in with you, then Delphi has "robot" gamblers ready to call your bluff. TQ Trivia tests your knowledge in several different categories. Other games include Scramble and Flipit. But all these pale considerably compared to the variety and complexity of the games offered on CompuServe.

Delphi's main strength has always been its pricing; there are no surcharges for higher-rate access and no Tymnet or Telenet charges. The system's Advantage plan offers connect rates for \$6.00/hour. There is a \$5.95 monthly fee that includes your first hour online. With the 20/20 Advantage plan, you get 20 hours for \$20.00.

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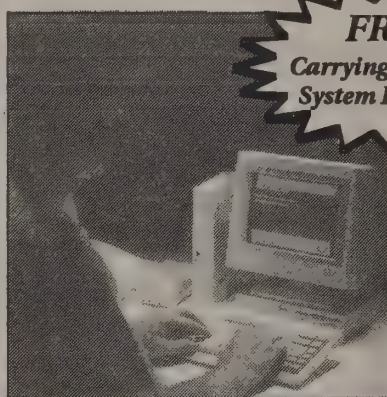
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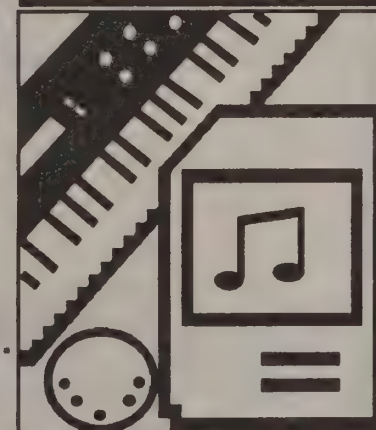
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month this service changes its offerings, mostly by adding something new or improving on an existing feature. It's never static. Aimed largely at PC users who want a low-cost system, GENie has been increasing its membership on a steady basis ever since it went online in 1985.

The core of GENie is what it calls "RoundTables." These are patterned after the SIGs on CompuServe and Delphi. People with special interests can start a RoundTable discussion; the RoundTables operate in a manner similar to CompuServe's.

You'll also find downloadable shareware files, real-time chat mode, email, and an online shopping mall. GENie offers more than thirty product support RoundTables for companies such as Hayes Microcomputer, Microsoft, WordPerfect, etc. (Software and hardware vendors also have their own forums on other systems, such as BIX and CompuServe.) GENie offers NewsGrid for headline news, and there's a gateway to the Dow Jones/News Retrieval system, too. GENie offers 550 local telephone nodes around the country. This keeps the network charges down to that of a local call.

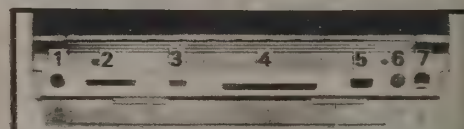
Politically Correct readers might take note that the parent company is the same General Electric that is heavily involved in the manufacture of defense weaponry, including the triggering devices for nuclear weapons. Lest you think that my own political bias is showing, the subscribers themselves have blasted the parent company in a special RoundTable set up just to debate this topic. But if you're an employee of GE, don't bother being candid here; it could cost you your job.

A couple of years ago I wrote a story for *MicroTimes* that chronicled the dismissal of a GE employee for speaking up about his misgivings concerning GE's defense ties. That employee "spoke up" on the GENie RoundTable designated for just that purpose. The company thought differently and fired him. Forewarned is forearmed. ■

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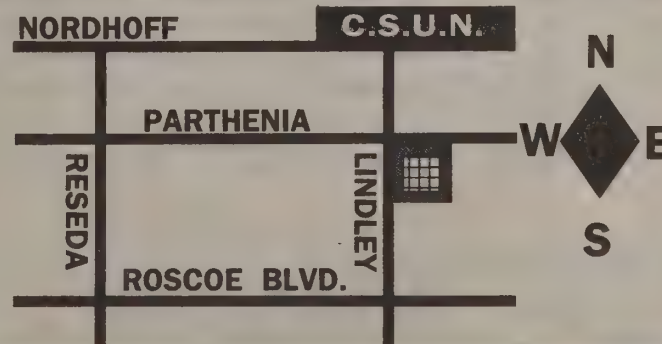
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Your First Computer

About Utilities In General, And Norton In Particular

BY MIKE
MARKOWITZ

"When I started at the Sanitation Department, I didn't know a sewer from a hole in the ground."

—Norton (Jackie Gleason's pal on *"The Honeymooners,"* c. 1953)

In the real world, utilities are things like water, electricity, gas, and sewers, which we take for granted until the bill arrives. In the unreal world of software, utilities are programs that we take for granted until Something Bad happens. "Something Bad" is typically a system crash, or a cryptic message from your computer's operating system on the order of, "I can't read this disk, do you want me to format it?"

Let me vastly oversimplify a topic of horrendous complexity (this, after all, is a writer's job). Computer problems fall into two main categories. "Hard" failures happen when an electronic or mechanical component goes bad. The cure is to replace the offending component after a technician at \$75/hour has figured out which one is to blame. "Soft" failures happen when one digital bit (or a whole lot of them) gets written or read incorrectly. Hard failures are quite rare; soft failures are rather common. The solution—or even better, prevention—is often found in a disk utility program. The least reliable component of any computer system is generally the user, and a good utility program also offers some insurance against inevitable human errors.

Utility programs are also written to do things that were left out or forgotten by the programmers of a computer's disk operating system. For example, the Macintosh has a built-in function to "capture" monochrome screen images (holding down Command-Shift-3 saves the current screen as a MacPaint file), but to capture a color screen you need a graphic utility. DOS computers have a built-in "Print Screen" button for text, but to capture and print any kind of graphics screen, you need a utility.

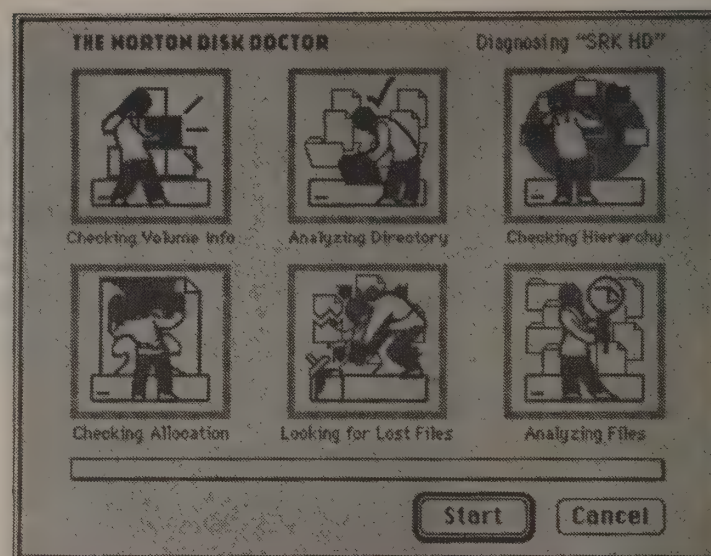
In the DOS world, utility programs can be ordinary applications (things that usually have a .COM or .EXE filename extension) or they may be TSRs ("terminate-and-stay-resident" programs) that grab a chunk of memory and reside quietly in the background until you summon them with a keystroke—or until they conflict with other TSRs and crash your system. Mac utility programs can be applications, desk accessories, control panel "devices," or INITs—those strange and wonderful critters that lurk in the System folder, waiting to conflict with other INITs and crash your system.

It's not supposed to be fun. It's a computer.

There are many other kinds of specialized utility programs, for example, virus detection and eradication programs, or file conversion and translation programs. Many excellent utility programs for Apple II, Mac, IBM PCs, and other systems are public domain or shareware available from user groups, online services, or bulletin boards. But a good disk utility is still something you need to go out and buy.

THE NORTON UTILITIES

Soon after Symantec Corp. acquired Peter Norton Computing on May 14, 1990, the choice of a disk utility program was greatly simplified for



The Norton Utilities are among the most useful computer tools available.

MS-DOS and Macintosh. Now, if it says "Norton Utilities" on the box, it's probably what you need. The closest competition comes from Central Point Software, with PC Tools (v7.1) and Mac Tools Deluxe (v1.2).

The Norton Utilities for DOS (\$129 list) is now up to v6.0, which I haven't seen yet. This description is based on v5.0, which I have used extensively. The package is actually a collection of programs, which can be run from a well-designed menu (which supports use of a mouse) or directly from the DOS command line. When completely installed, the programs take up about 2.5MB of disk space.

Some of the most useful programs are:

- Disk Doctor II**—diagnoses and corrects a wide variety of disk problems

- UnErase**—recovers deleted files (if the data is still physically present on the disk)

- Disk Editor**—an advanced technical utility that lets a user view and change any information on a readable disk

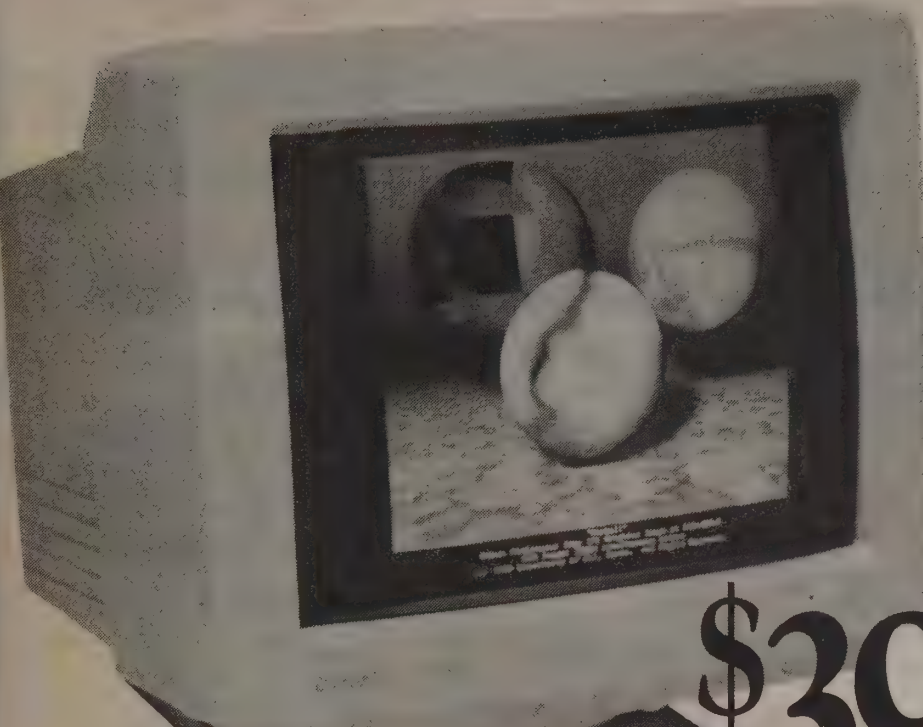
- SpeedDisk**—optimizes performance by rearranging disk files. As files are created, modified, and deleted over time, a disk tends to become "fragmented," with portions of a single file written in different physical locations, wherever DOS could find free space. Fragmented files take much longer to load or save, slowing down the computer.

- Diskreet**—encrypts files and provides password protection to confidential areas of a disk. An encrypted file is "scrambled" in a way that can only be decoded if the correct password is entered. You have the choice of using a fast Norton proprietary encryption method, or the US Government-certified Data Encryption Standard (DES). Because the program implements this standard, the box carries a notice that "US State Department license required to export this product outside the US and Canada." If our enemies encrypt their data disks, the New World Order could be imperiled.

- System Information**—provides detailed reports on your system's

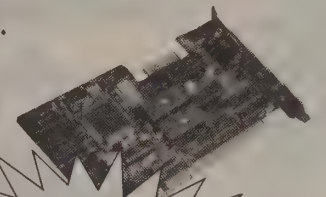
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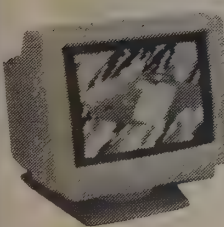
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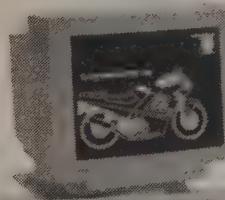
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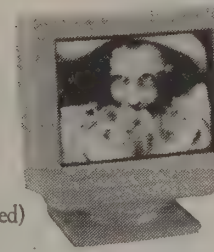


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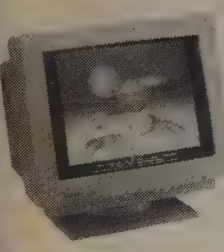
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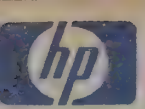
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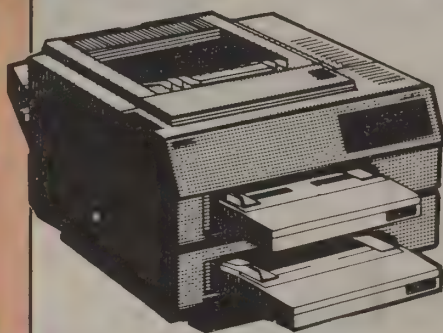
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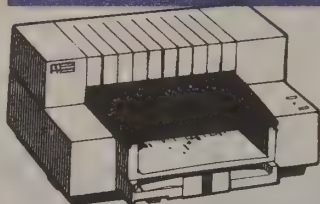
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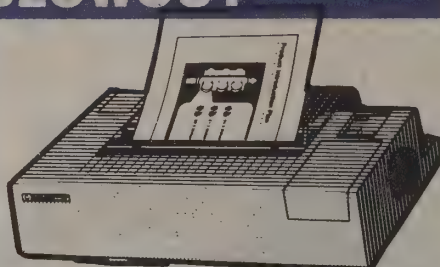
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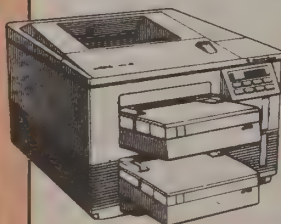
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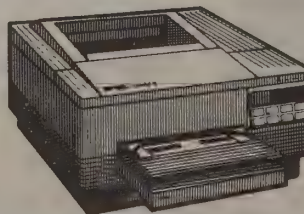
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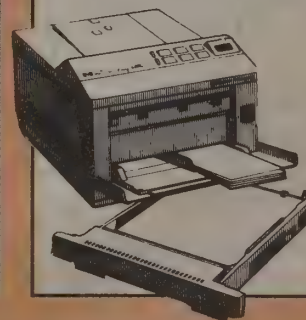
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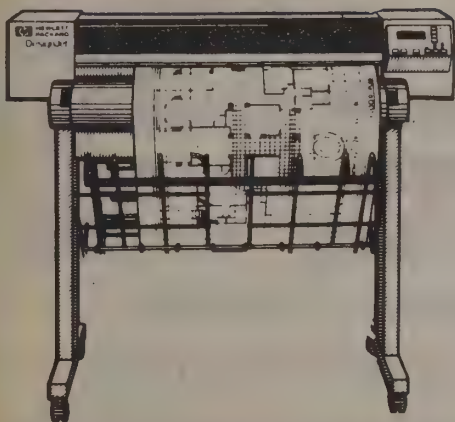
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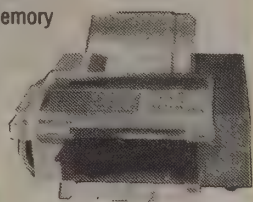
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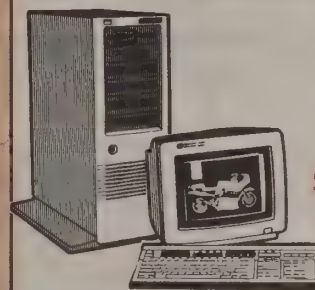
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hardware, memory usage, and performance. The "Norton SI" index, which rates an IBM PC-XT as 1.0, and a Compaq 386/33 as 28.7, is a widely used measure of overall system performance. Documentation is exceptional, with a 336-page softcover user guide, quick reference card, Command Reference booklet, and a 208-page "Disk Explorer" guide which lucidly explains some of the technical background behind MS-DOS disk formats.

Norton Utilities for the Macintosh (\$129 list) offers many of the same features, with the point-and-click Macintosh interface. The manual is short but very clear, and telephone technical support is said to be excellent.

Apple's introduction of System 7.0, a major revision of the Mac's operating system, makes many earlier Mac utility programs obsolete. Norton's v1.1 is System 7 compatible, but the package contains a number of little utilities that provide features of Mac System 7.0 to users of earlier system software.

Layout Plus, for example, lets you change the Finder's standard font and icon spacing. Norton's FastFind desk accessory provides a much faster and more usable way to search for a file than Apple's old Find File desk accessory. Key Finder is a DA that displays all the characters in a font. Directory Assistance is an INIT that improves the Finder's standard Open and Save dialog boxes, which were always one of the most confusing and unfriendly aspects of the Mac user interface. DiskLight is another INIT that flashes a tiny icon on the Mac's Menu Bar whenever a drive is reading or writing. This is particularly useful on Macs like the LC, which have no built-in LEDs to show hard disk activity.

FileSaver is perhaps the most valuable item in the package. It creates and maintains a safe duplicate copy of the critical file and directory information that enables a Mac to access a hard drive. If this information becomes garbled, a Mac often fails to recognize its own drive. FileSaver often makes it possible to recover trashed files

(UnErase and Format Recover). You can tell the UnErase program to recover specific file types, or just files that contain specific words.

Norton's Disk Doctor can diagnose and repair forty-five different Mac disk and file problems. It can also detect (but not correct) some virus infections. There is also a powerful Disk Editor, which should probably only be used by programmers who have mastered the first few volumes of *Inside Macintosh*.

The runaway success of Windows and the creeping advance of Mac System 7.0 have created great new opportunities for revising and rewriting all sorts of utility programs. Learning how to use utilities is one of the ways beginners gain confidence and grow into Power Users. ■

RESOURCES:

Norton Utilities
Symantec
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(408)253-9600

In the unreal world of software, utilities are programs that we take for granted until Something Bad happens. "Something Bad" is typically a system crash, or a cryptic message from your computer's operating system on the order of, "I can't read this disk, do you want me to format it?"

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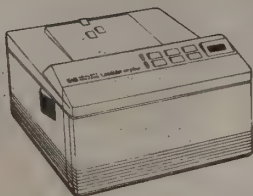
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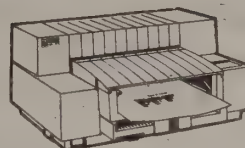
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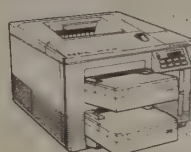


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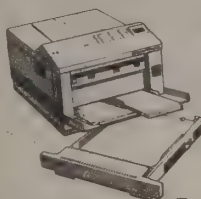
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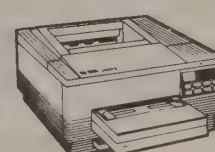


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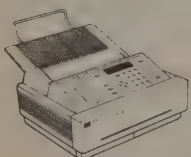
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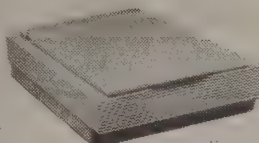
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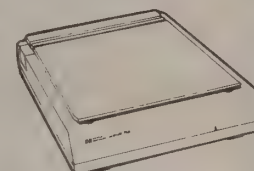
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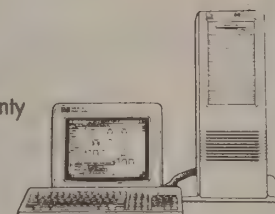
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Object-Oriented Programming: What's The Big Deal?

A Closer Look At One Of The Year's Big Buzzwords, And Some Of Its Real-Life Impact On Computing As We Know It

**BY BIRRELL
WALSH**

If you're a businessperson, an information manager, or a programmer, you know that object-oriented programming (OOP) has gone from being a buzzword to solid reality. Instead of folding up and stealing away (remember Hypertext?), OOP systems are spreading. Microsoft, Borland, Hewlett-Packard, and Apple, among others, have all committed themselves to OOPS.

Object-oriented programming offers:

- Reusable code
- High security
- Modular programs
- Software that interacts with other software
- Upgradable programs
- Software that works across many machines, networks, and sites.

The drawbacks are greater complexity, and slightly larger and slower programs. As technology develops, the cost is decreasing and the advantages growing.

HOW OBJECTS WORK

Objects are hybrids of data and functions. They work very much like small, independent programs. In the jargon they have "persistence," "encapsulation," "polymorphism," and "inheritance."

"Persistence" means that objects continue to exist and to carry their data unless they are destroyed.

"Encapsulation" means that (in most objects) the data and functions within the object are unavailable to outside use, unless they are explicitly made accessible.

"Polymorphism" means that different objects can respond to the same command with different behaviors.

"Inheritance" means that objects are members of classes. New classes that inherit all the characteristics of older classes can be defined, and then further tailored.

For instance, here is an object from an object-oriented database:

```
object Sale:
  {"Data Fields*}
  Integer InventoryNumber;
  Currency Price;
  {"Functions and Procedures*}
  Procedure Reorder
  Public:
  Currency TellPrice();
  Procedure BeSold;
end object.
```

This looks pretty much like a database record—except that it includes functions and procedures. Because information and functions travel together, entire processes can be hidden inside the object. Outsiders cannot get to data stored inside the object, or use the functions in the

object, unless the data or functions are "Public." The only functions which can be accessed from outside after a Sale object is created are TellPrice()—which gives a price without letting the price itself be changed—and BeSold. Public functions and procedures are the "messages" or "requests" to which objects will respond.

In OOPS, we build a pattern (the class) and then make instances from this mold. There may be thousands of Sale objects, but only one Sale class. This is one sense in which objects are reusable.

Another is that you can build new classes which use the old class as an ancestor or partial prototype. The new classes have all the features of the old, plus whatever extensions you wish to add to the new. The new class is called a "descendant," and the process of using the old class as a prototype for the new is called "inheritance."

Here is a descendant of Sale.

```
object ExportSale:
  {"Let it inherit from Sale*}
  IsA Sale;
  {"add new data fields*}
  Boolean Restricted?;
  Text Nation;
  Currency ExportDuty;
  {"and a new procedure*}
  Procedure PrepareExportDeclaration;
  {"and a DIFFERENT TellPrice*}
  Public:
  Currency TellPrice();
end object.
```

Instances of ExportSale have all the information and functions that instances of Sale have (Price, etc.) plus additional information (Restricted?, Nation). They also have an additional procedure (make papers for the government), and a "polymorphic" function in TellPrice(). It is a different function from that in a simple Sale object, but it has the same name. The user (and other objects) interact with objects by sending messages. If there is a Sale object called Item391, I can "request" its price with the command:

```
Item391.TellPrice()
```

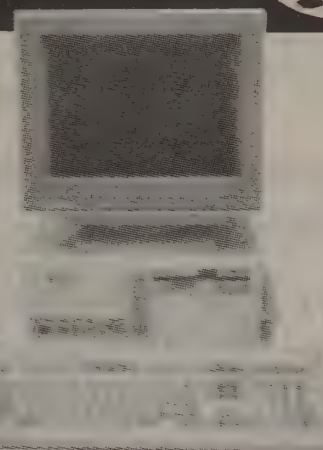
Item391 will return a price after doing internal calculations. If an object of type Sale is asked to TellPrice, it may give you just the item price from its private data. If an ExportSale is asked to do so, it may calculate an export duty and add it to the mix. But both objects are responding to the same message, TellPrice().

The different-response-to-the-same-command feature is called "polymorphism." It means that you can ask Sale objects and ExportSale objects for their price, without knowing which kind of object you are addressing, because they both respond to the same command. With polymorphism, you can create a small number of commands

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that get different but appropriate responses from various objects. Each responds according to its nature, and the user does not need to know what is going on behind the scenes.

Some objects are created when the program is compiled. Objects can also be generated by the program when it runs. These "dynamic" objects can respond to commands and act just like those created by the programmer, but they come into existence and vanish as creatures in an ecology. They are contingent entities in a running universe—not unlike us.

Programs can be made up of a set of interacting objects. Each object is separable from its fellows. You can redesign it without

having to rebuild all the rest of the objects in the program, as long as your reconstructed object responds to the same commands as the old one. Different work groups can design different objects. Basic object types can be reused as ancestors of hundreds of descendant classes. Programmers get to like using objects.

If no one knows what is going on inside an object's functions, and no one can tamper with its data without authorization, then an object is highly secure. It polices its own borders, responding only to authorized messages like `TellPrice()` and `BeSold`. Since an object has boundaries, you can own it. You can reward or punish the persons who de-

signed it. You can rent out the use of the object without telling how it works.

You can see a certain appeal here to the corporate mind.

Since both the programmers and executives like objects, more and more programs are built around them. Objects can be used for complex as well as simple purposes. Whole programs and databases can be nested behind the formidable walls of one object. The user need not, and cannot, know what is going on behind the fortifications. Therefore, extremely powerful proprietary algorithms are naturals for encapsulation into objects.

THE PRESENT: OBJECTS TALKING TO OBJECTS

If a program can interact with an object which did not exist when the program started running, why not let it interact with an object from another program or another machine?

What if our Sale object must dial up a database in Topeka during the execution of `TellPrice()`? What if that database is itself an object and also part of the object Sale? Then each Sale object is distributed across more than one machine. Its functions and most of its data live here, but it has a nested database that lives thousands of miles away in another machine. Perhaps another *type* of machine—our program may be running on a Macintosh, but the database might live on a PC or a VAX. All we need is a standard set of protocols for inter-object communication.

To make it possible to exchange commands among different platforms, the Object Management Group (OMG) has united more than 180 vendors and users (including IBM, Apple, Microsoft, DEC, AT&T, Sony, Fuji, Borland, and American Airlines) to create standards for objects. As their standards are adopted by the industry, it will become possible for objects to communicate from a PC running Para-

dox, through an HP workstation running New Wave and a UNIX box at a university, to a Macintosh running System 7.01965.

The OMG has already formed a consensus on the keystone of the cooperative arch: the Object Request Broker (ORB). Approved in October, 1991, the ORB permits a common system for passing messages back and forth among objects. When the OMG standards are fully in place, software will be able to talk with other programs on other kinds of machines. Various hardware platforms will no longer be islands.

SPECULATIONS ON THE FUTURE

We already have objects talking to each other, objects occupying many machines, objects growing to huge complexity behind their boundaries. What lies ahead?

What if our program needs to move? Maybe the machine it is running on is needed for another job. Of course, we could shut everything down, haul disks across the room or across town, and boot on another machine. But why not let the program move itself? It could transfer a kernel of itself to another machine via modem, and that kernel could reconstruct the whole running system by hauling objects through the wire.

Impractical? No, in fact it's already being done. Hewlett-Packard's New Wave has the ability to send whole objects—including nested

Objects can be used for complex as well as simple purposes. Whole programs and databases can be nested behind the formidable walls of one object. The user need not, and cannot, know what is going on behind the fortifications. Therefore, extremely powerful proprietary algorithms are naturals for encapsulation into objects.

objects—by network. And self-reproducing kernels are better known as "viruses." Robert Morris's Internet worm was just such a self-transferring program. The technology of viruses need not be used for harmful purposes—expect objects that are not only distributed but migratory.

The object model of programming is developing while computers get fast, cheap, and small. The activities within a single object will grow correspondingly fast, big, and complex. Artificial Intelligence, Fuzzy Logic, and Neural Networks will be embedded in objects. Communicating, moving from machine to machine, having "private thoughts"—objects will look more and more like living things. At the same time they will be property. Their future may have to be defined in courts and legislatures.

We can leap into the future and look back on what lies ahead. If your vision is different, by all means write us here at *MicroTimes*. (We may just publish a compendium.) But for a starter:

Programs can be made up of a set of interacting objects. Each object is separable from its fellows. You can redesign it without having to rebuild all the rest of the objects in the program, as long as your reconstructed object responds to the same commands as the old one.

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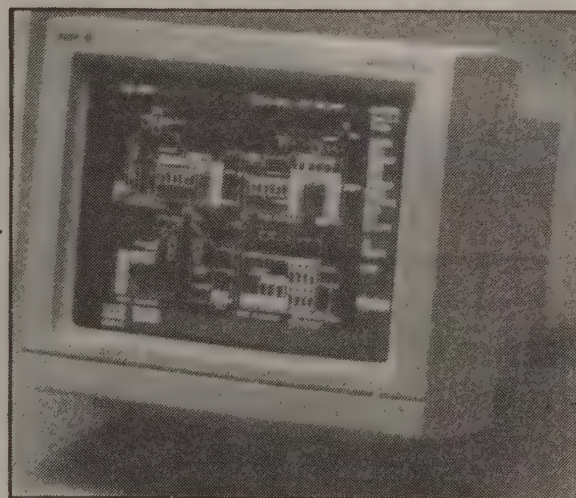
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1993: Judge Abraham Kalif declares that uses of an object are not implicit in the design of the object, and so discards Lotus's argument that all programs which incorporate Lotus objects must pay royalties as well as license fees. At the same time, Judge Kalif rules that reverse engineering of an object constitutes invasion of privacy.

1994: The Cupertino Five receive seven years each in state prison for unlicensed object destruction. Appeals courts refuse the claim that objects are only "virtual" entities. "So are dollars," says the court.

1996: Microsoft's creditors agree to keep the 64-bit Windows standard intact despite the collapse of Microsoft. "Objects and their environments are inseparable," they say. "To close the Windows standard would leave us liable to litigation under the Cupertino Five decision."

1995: Universidade de Sao Paulo researchers show that sentience in animals is always associated with "aleph-complexity" of interconnection in the nervous system. Mathematician Rudy Rucker at San Jose State calculates that half a dozen running systems (including the Internet and two videogames on Apple's Cray computers) have aleph-complexity. He mentions in a science fiction novel that because of barriers around objects, and their nesting, their aleph-complexity may be indeterminable.

1998: Writing for the majority, US Supreme Court Justice Reyes declares the "Turing Equivalency" doctrine: "In the computing environment, a human being's presence displays locality, boundedness, data-content, and autonomy. There is no way that a person using computer hardware—when perceived from within the computing environment—can be distinguished from an object in the computational sense. We follow the prior decisions in finding that use of a human's interaction does not make the human the author of the whole event (Lotus vs. Odysseus and Associates), and that unauthorized destruction of a person's 'presence' in a network constitutes ob-

ject-destruction (Apple/Groupe Bull vs. Morris et al.)."

2001: The European Court of Human Rights stays the unplugging of a Cray 21000 on the grounds that "uncensused objects" may be sentient.

2007: The Sarvabbutani League for the Protection of All Beings is organized at the World Buddhist Congress in Mendocino, California. A divided SLPAB declares that aleph-complex objects are "apparently sentient."

2007-2112: The Persecution of Lawyers. Mechanical intelligences generally protect lawyers from the mobs, sometimes at risk to their host machines, and their "humanity" is remembered after the Restoration of Law.

2015: The Treaty of Carthage grants certain objects of "aleph-complexity" or greater the status of "legal persons though not citizens." The treaty is called the "Valentina Manumission" after the novel by Delaney and Steigler which first predicted "legal person" status for programs.

2025: AC objects are granted citizenship in the California Republic. Similar status follows in Serbia, Quebec, the Greater North American Union, and finally the European Union. AC objects' refusal to enter networks where they do not have citizenship, or to process data from "slaver" nations, effectively grants them citizenship worldwide.

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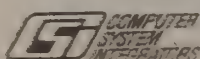
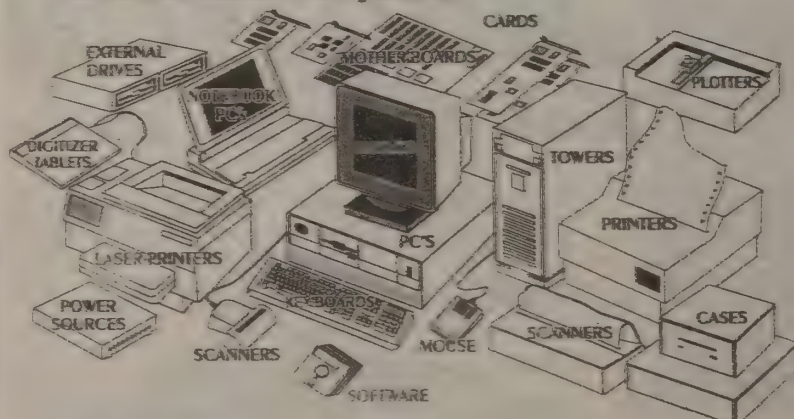
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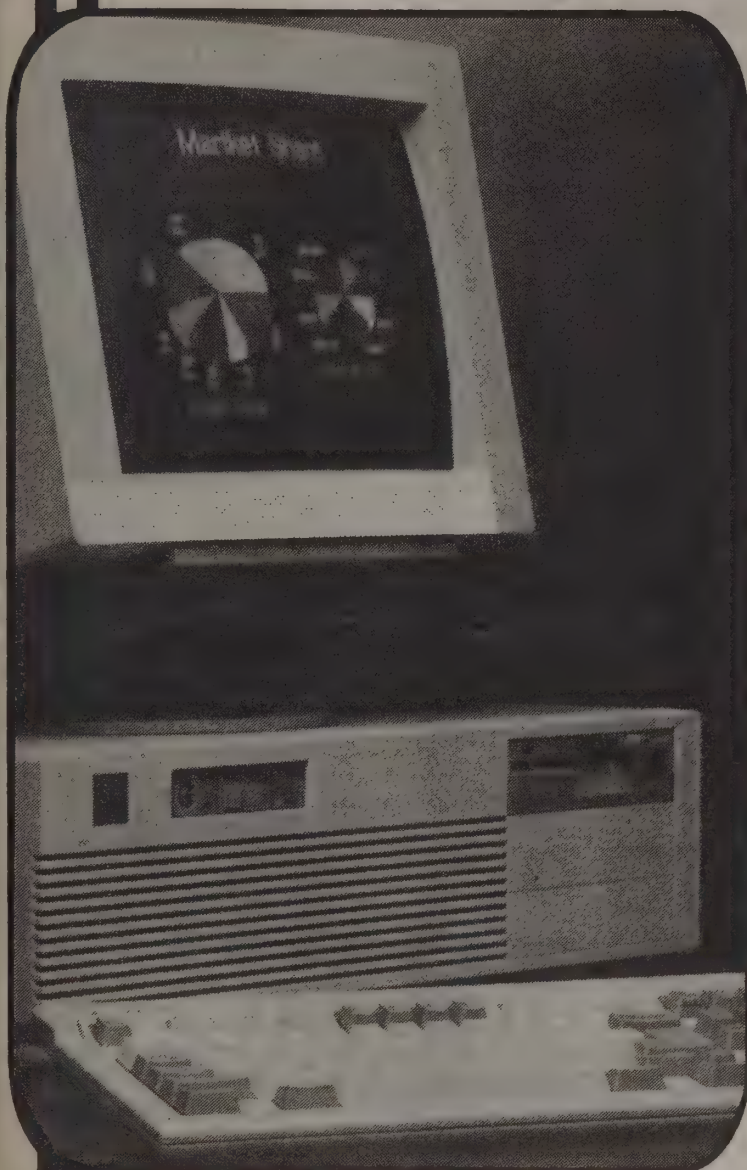
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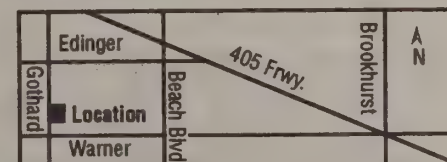
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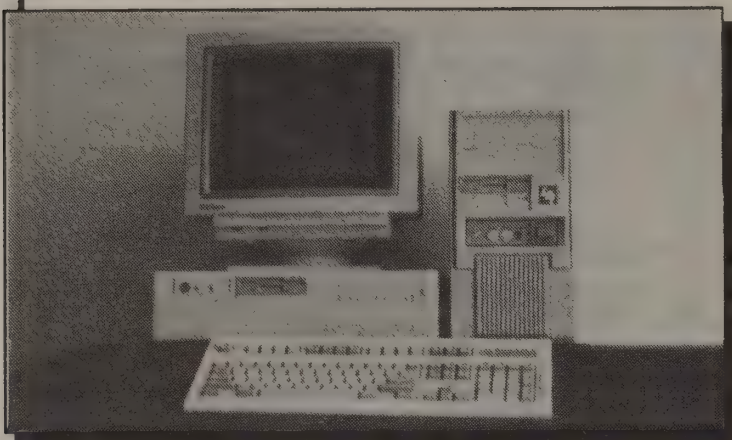
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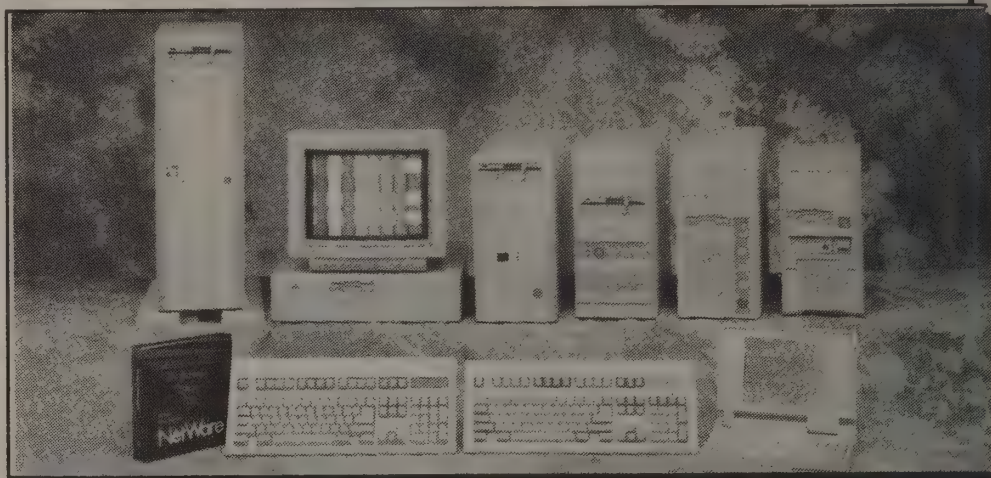
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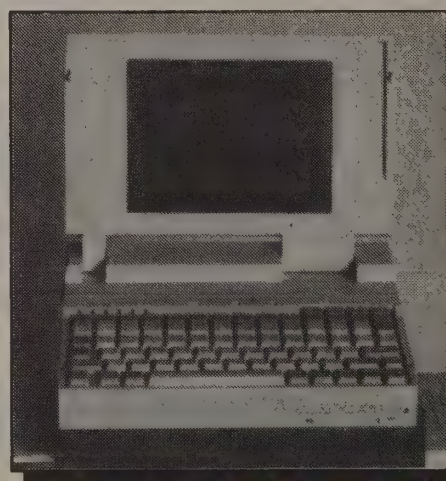
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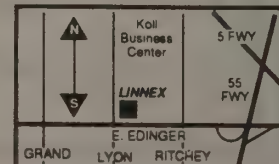
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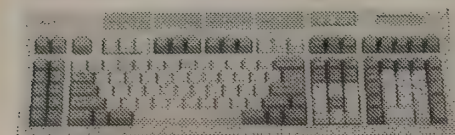
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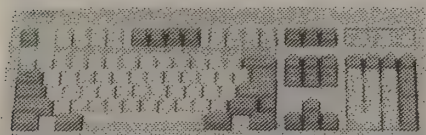
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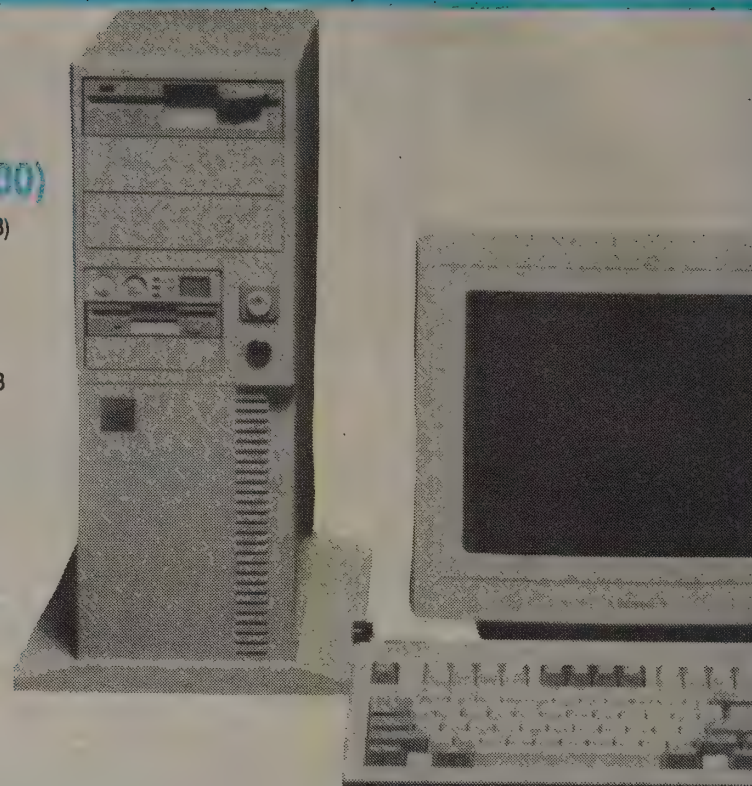
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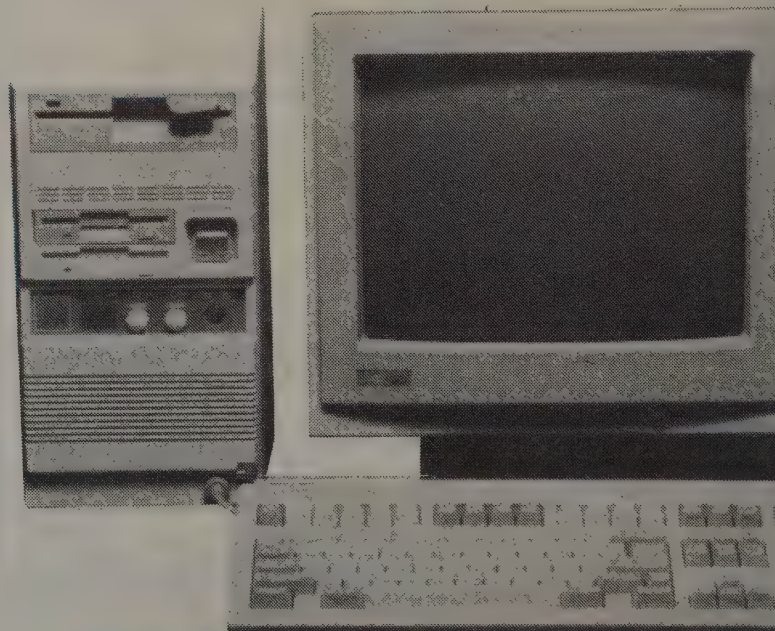
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Driver Support: Windows 3.x, AutoCAD 10 (286), AutoCAD 10 (386), AutoCAD 11, MicroSoft Word, WordPerfect, Lotus 1-2-3, Generic CAD, Microstation, GEM, VersaCAD, P-CAD, Ventura

Publisher, PCAD, Ventura Publisher, CADance, Cadkey.

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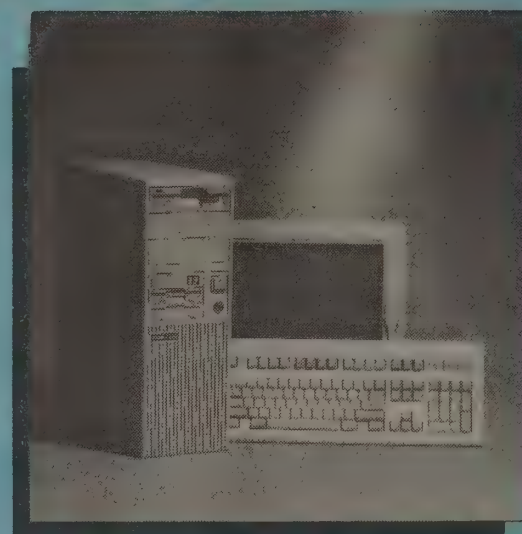
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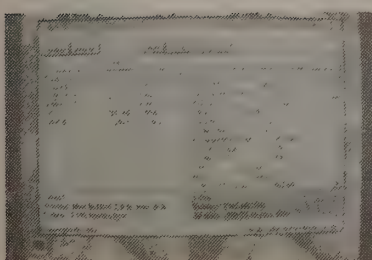
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port. There is also room for a 387SX coprocessor and internal fax/modem. Microline Computers, Inc., 46757 Fremont Blvd., Fremont, CA 94538. (510)770-1900.

PC SOFTWARE

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Mac-In-DOS gives DOS-based PCs the ability to transfer files to and from Macintosh computers via 1.44MB floppy disks. The newest version, Mac-In-DOS 2.0 for Windows, lets users take advantage of Windows

PRODUCT UPDATES

- **Casady & Greene** released **Access Managed Environment (A.M.E.) v2.0**. A.M.E. is a comprehensive integrated security package for the Macintosh that includes multilevel security, continuous virus protection, and detailed activities logging. Casady & Greene, Inc., 22734 Portola Dr., Salinas, CA 93908-1119. (408)484-9228.
- **Connectix** released **HAND-Off II v2.2.1**, its Macintosh file launching utility. Connectix Corp., 2655 Campus Dr., San Mateo, CA 94403-2520. (415)571-5100.
- **Dubl-Click Software** is shipping **MenuFonts 4.0**. Included with this new version are three bonus utilities: BigCaps, FontCharter, and FastFormatter. Current users can upgrade for \$20, plus \$5 shipping and handling. Dubl-Click Software, Inc., 9316 Deering Ave., Chatsworth, CA 91311. (818)700-9525.
- **GeoWorks Pro**, an upgrade for GeoWorks Ensemble, adds **Borland's Quattro Pro SE** spreadsheet to Ensemble's GeoWrite word processor, GeoDraw object-oriented drawing tools, GeoComm communications software, and the GeoManager file and personal information manager. GeoWorks, Inc., 2150 Shattuck Ave., Berkeley, CA 94704. (510)644-0883.
- **Intex Solutions** released an upgrade for **4-5-6 Link**, a file integration application that downloads and uploads mainframe data to and from Lotus spreadsheets. Formerly a memory resident program, 4-5-6 Link is now a true add-in that allows users to easily activate the program from a Lotus 1-2-3 menu. Registered owners may upgrade for \$145, plus \$5 shipping. Intex Solutions, Inc., 35 Highland Cir., Needham, MA 02194. (617)449-6222.
- **Neon Software** is shipping **NetMinder Ethernet v2.0**, its network analyzer for the Macintosh. Neon Software, Inc., 1009 Oak Hill Rd., Suite 203, Lafayette, CA 94549. (510)283-9771.
- **Parsons Technology's ViruCide 2.3** detects and eliminates a total of 893 strains, an additional 403 over the previous version. Parsons Technology, Inc., One Parsons Dr., PO Box 100, Hiawatha, IA 52233-0100. (319)395-9625.
- **SBT Corp.** released **Macintosh Series Six Plus v6.35** for **Accounts Receivable and Sales Orders**. This new version is easier to use and includes user-modifiable context-sensitive Help, a note card interface, and expanded accounting functions. Software Business Technology Corp., One Harbor Dr., Sausalito, CA 94965. (415)331-9900.
- **Solution Systems** released **Sourcerer's Apprentice 2.0**, its configuration management system software. In addition, Sourcerer's Apprentice is now available for Microsoft Windows as well as DOS and OS/2. Solution Systems, a division of The Software Developer's Co., 372 Washington St., Wellesley, MA 02181. 1-800-677-0001.
- **NeWSprint 2.0**, developed by **SunPics**, makes the high-performance SPARCprinter system available to any users on a mixed network environment. Sun Microsystems, Inc., 2550 Garcia Ave., Mountain View, CA 94043-1100. (415)960-1300.
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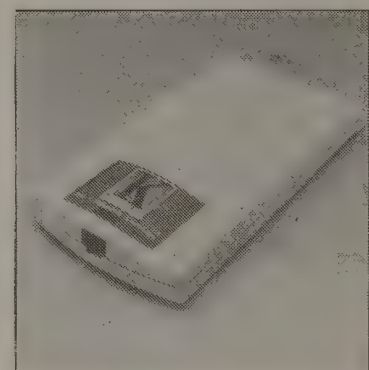


capabilities, such as mouse support and icon control. After you launch this program, insert a Mac disk and select the files—text or graphics—to transfer. Mac-In-DOS will also add or remove the line feeds within a document. (\$199) Pacific Micro, Inc., 201 San Antonio Cir., Suite C250, Mountain View, CA 94040. (415)948-6200.

PC HARDWARE

FONTMASTER CARTRIDGE

The FontMaster Cartridge for HP LaserJet printers comes with the Kelly Font Library of over one hundred fonts and can be programmed by the user to include bitmapped



fonts, scalable fonts, forms, or macros. For example, whole catalogues of forms such as sales and purchase orders, invoices, reports, and letter-head can be stored on a single car-

tridge. New forms can be designed or updated, and easily reprogrammed into the cartridge. FontMaster works with all HP LaserJet Series II, III, and IIISi printers; works with any printer that supports Series II cartridge formats; and includes a full lifetime warranty on parts and labor. (1MB capacity, \$449; 2MB capacity, \$599) Kelly Computer Systems, Inc., 274 Ferguson Dr., Mountain View, CA 94034. (415)960-0154, 1-800-934-2000.

PC SOFTWARE REVIEW

THE FAR SIDE COMPUTER CALENDAR

Published By: Amaze

List Price: \$69.95

Reviewed By: Woody Liswood

What happens when you take the fun and enjoyment of The Far Side cartoons by Gary Larson, add computer graphics and animation, combine it with a calendar, and make sure it looks great on both your computer screen and printout? Well, what you get is The Far Side Computer Calendar.

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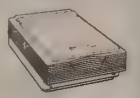


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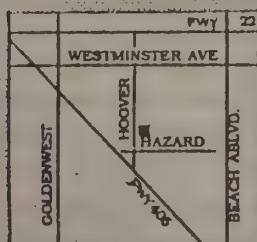
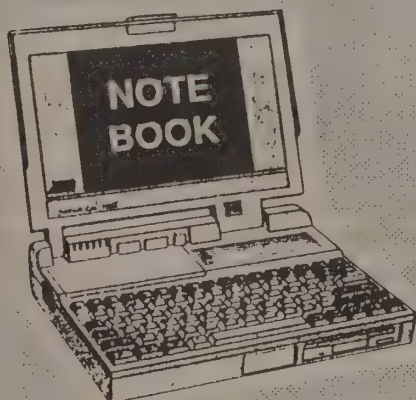
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have a choice of portrait or landscape, as well as a set of report types and page sizes. You can even add a special header and footer to help customize your printouts.

Installation is easy. Run install, answer some questions, and let the computer do the rest. If you send in the registration, you'll get a mug and Amaze will notify you when it is time to purchase another twelve months of Far Side graphics.

The animation is great. The Far Side, with moving images, is even better than The Far Side you see in our local papers. I will not tell you

what crash landed when I did one installation. Only to warn you that there are more of them around that will fly across your screen when you least expect it.

If either you or your best friend use Windows, this is pretty close to a "must buy" for the new year. (Amaze,

Inc., 11810 115th Ave. N.E., Kirkland, WA 98034-6923.
206/820-7007)

MACINTOSH SOFTWARE REVIEW

TOUCHBASE 2.0

Published By: After Hours Software

List Price: \$120

Reviewed By: Mikael Blaisdell

Reviewing software can be fun, especially when the mail brings a package that fills a definite need. TouchBase provided the perfect opportunity to update and modernize my older, self-designed DBMS-created mailing list I use for my consulting practice.

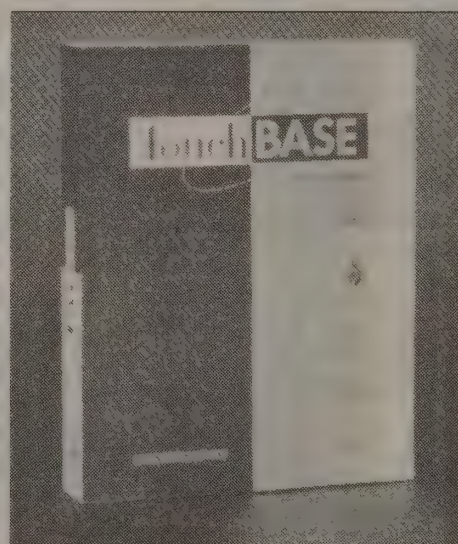
Beginning with TouchBase v1.0, I put it to immediate, practical use. The first thing I did was import data from a PC-based, multiuser, proprietary O/S into TouchBase on my venerable Mac Plus, printed labels, envelopes, prospecting worksheets, and sorted client listings. I then exported data to a merge file in my word processor for a series of letters. Everything worked perfectly, easily—it

was a pleasant experience after suffering for so long under my old kludged system.

The strengths of TouchBase lie in the design; the manufacturer anticipates and effectively handles all the standard sorts of usages that the average person is likely to need. It prints address and phone books, labels, fax cover sheets, envelopes, and detailed listings per entry, plus permitting a wide variety of arrangements (including your own customized ones) of general listings of all or selected parts of the database. TouchBase will even dial

your phone, if desired. Sorting can be done on any field, using exact matches, begins-with, or contains specifications. Version 2.0, which arrived as I was working on this review with v1.0, provides multiple-level sorts as well as a host of other improvements on an already powerful product.

TouchBase also handles multiple databases with ease. I set up about ten separate databases and imported/exported records amongst them all with no difficulty. The package is rated as network-capable, but I didn't have an opportunity to test this aspect. The manual is well written; while it perhaps could use more examples, I was able to find everything I needed to install and use the system. Customer Support was very helpful; I got through immediately, and the technician answered my questions very quickly (and correctly!). All in all, TouchBase is a delight to use—and I do. (After Hours Software, Inc., 5636 Van Nuys Blvd., Suite B, Van Nuys, CA 91401. 818/780-2220)



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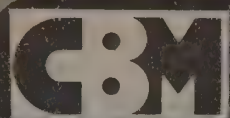
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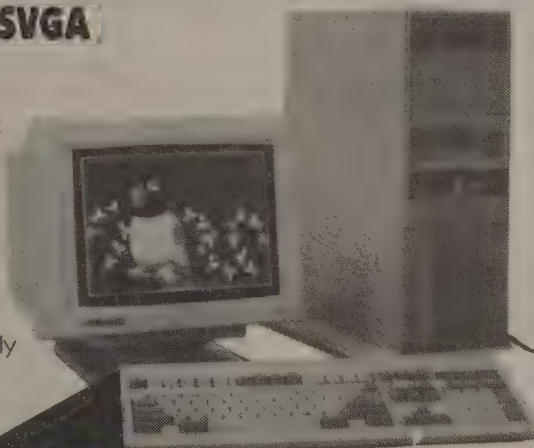
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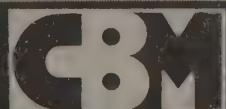


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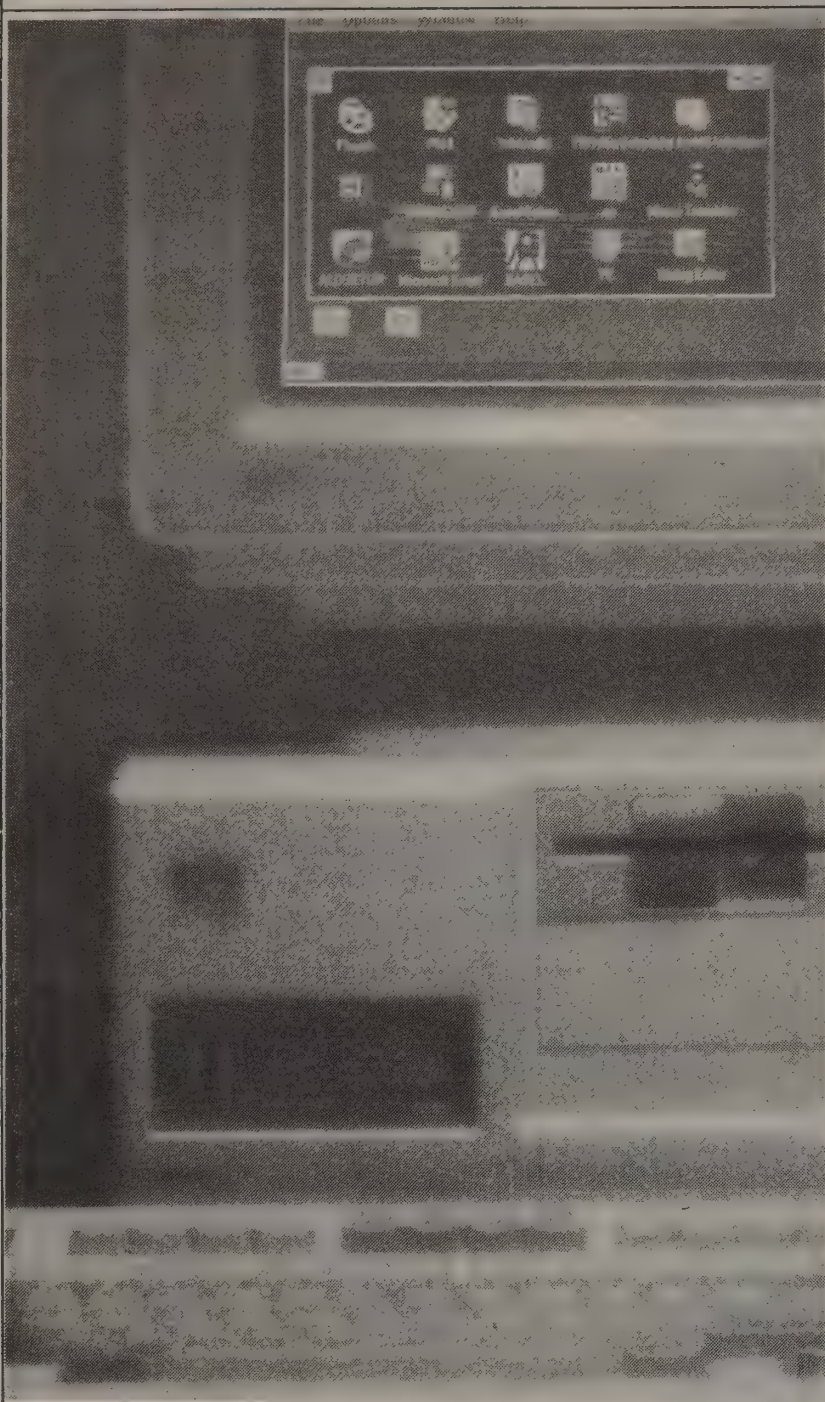
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GAMES REVIEW

By Mike Markowitz

KNOWLEDGE ADVENTURE

Published By: Knowledge Adventure

Programmed By: Fernando Echeverria and Dan Kegel
For: MS-DOS (requires EGA or VGA video and hard drive with at least 6MB of free space, mouse and most audio cards supported)

Age Level: 7 and up

List Price: \$79.95

If true "multimedia" programs for DOS systems have to wait until everyone has a CD-ROM drive, it's gonna be a long wait. Meanwhile, developers are managing to deliver some ambitious products that run on systems that people actually have.

Knowledge Adventure is the first product from a small startup company staffed by veterans of Lotus. More than a game, and less than an encyclopedia, Knowledge Adventure is a database of images and text, plus a little sound, tied together by a very smooth user interface. According to Steve Chadima, vice president of marketing, additional plug-in modules, such as Sports, are under development, and the program's core "engine" may even-

tually be licensed as a simple multimedia authoring tool.

The main window is a picture linked to a text file, time line, and location. The time is referenced to a scroll bar at the bottom of the screen, extending from the Big Bang to the year 2000. The text box presents a paragraph in a very readable font that scrolls very smoothly. You can print out the text files by clicking a button (you can even read or print these plain ASCII files from DOS).

The location is referenced to a dot on a small wire-frame globe of the Earth. Based on a mainframe model developed at JPL, this 100,000-vector globe can be zoomed and rotated in any direction. You can zoom in to an area as small as 100 square miles, which is helpful in regions like Western Europe that are densely packed with history. Click anywhere on the globe and the display jumps to the nearest image.

Knowledge Adventure uses familiar hypertext cross-reference conventions. The images are classified and linked by category such as art, science, literature, architecture, music, and nature. Click on a category button and you jump to the next image in that category. Some images also have invisible buttons within the picture frame—click on an object and you jump to another related image. The text indexing is superb: every occurrence of every significant word is cross-referenced. You simply double-click on a word to bring up the master index.

The images are mostly color photographs scanned in

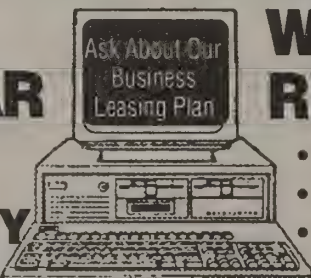
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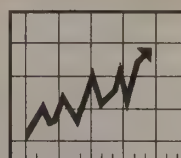
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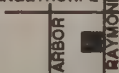
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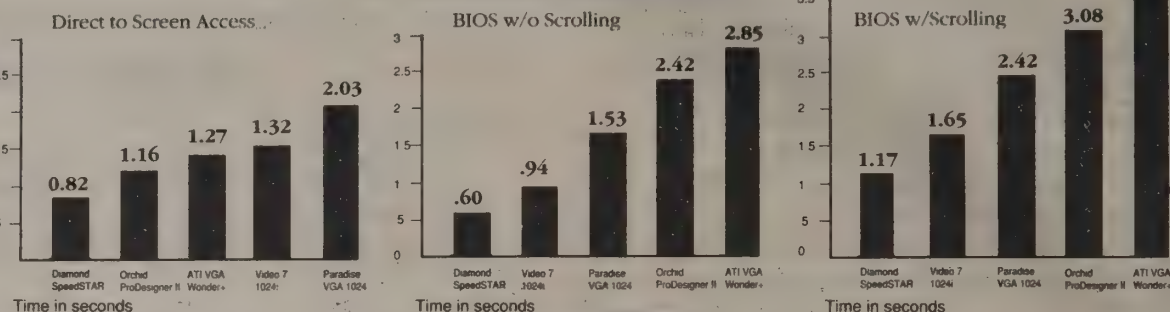
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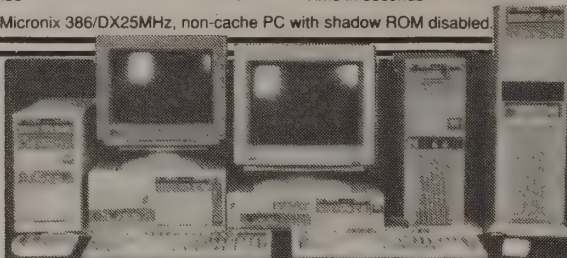


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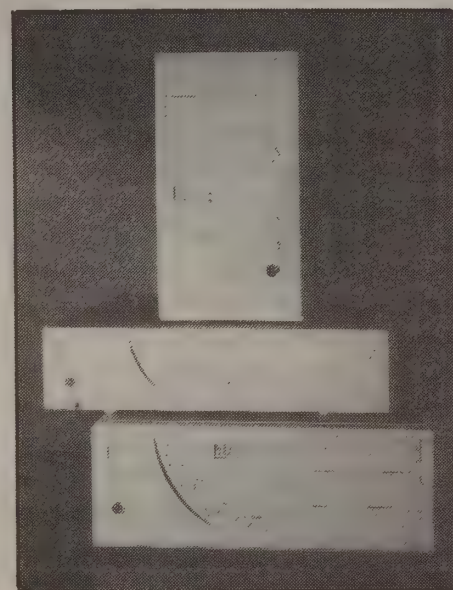
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PRODUCT SPOTLIGHT

16-color EGA format and stored using proprietary compression methods (you would need a screen grabber to capture or print them). The compression ratio is about 10:1 and it only takes 1-2 seconds to decompress and display each image. Some of the scans are surprisingly sharp, while others are at the borderline of fuzzy acceptability. Future versions will incorporate 256-color VGA photo-realistic images, but really large image libraries will probably require CD-ROM. Due to copyright restrictions, the program itself does not provide any hardcopy capability for the images, although the company is working on color printer drivers for future products.

I was disappointed that the text files did not include their sources or suggestions for further reading. Overall, Knowledge Adventure is a splendid front end to rather spotty and thin coverage of a vast domain of information. The slim user manual suggests several game-like activities that would, I think, be tremendous fun for curious kids.

The package includes eight 3.5" (720K) and five high-density 5.25" disks. A well-designed Installer makes the long installation process quite painless. For schools that have enough disk storage, Knowledge Adventure would be a valuable addition to a software library. (Knowledge Adventure, Inc., 4502 Dyer St., Suite 100, La Crescenta, CA. 818/542-4200)

PATTON STRIKES BACK

Designed By: Chris Crawford

Published By: Brøderbund (1991)

For: MS-DOS (640K, 10MHz AT or higher, mouse and EGA or VGA graphics recommended), Macintosh (1MB monochrome, 2MB color)

List Price: \$59.95

"War games have always been hairy monstrosities, staggering under rules books that read like contracts for corporate mergers, bristling with abstruse numeric information, exploring strange new worlds of user hostility..." says designer Chris Crawford. In Patton Strikes Back, he set out to design a wargame that could be enjoyed by normal users. He was willing to make compromises with "realism" that would make the game easier and more enjoyable to play. The game is still surprisingly realistic—good tactics usually beat bad ones, but victory is very difficult for the Germans.

The subject is one of the best-known battles of the 20th century. (Most wargamers know the geography of the Ardennes better than the street map of their own neighborhood.) In December, 1944, as the Allied armies approached the German border, Hitler conceived the idea of a bold counter-attack through the rugged Ardennes Forest (in Belgium and Luxem-

bourg), where his Panzers had made a decisive breakthrough in May, 1940. Elite SS and armored units were secretly concentrated opposite a quiet sector of the front, catching the American GIs by surprise. Severe winter weather grounded Allied airpower, as the Nazi attack rolled on to surround the key town of Bastogne. An epic stand by US paratroops held the crossroads until George Patton's Third Army arrived.

The colorful game map covers an area of about 50 by 80 miles. Units are divisions and brigades (roughly 3000 to 17,000 soldiers) and the time scale is hourly. There are no "turns"—the action is continuous and you intervene whenever you want to give a unit new orders. Patton is designed as a solitaire game—you can play either the Allied or German side against the computer. There are five levels of difficulty, and you can select historical or random weather and reinforcement schedules.

The display uses very simple unit symbology—a thick arrow for attack mode, a circle for defense mode, a thin-tailed arrow for mobile mode, and an "X" for shattered mode. When you click on any unit its identity, strength, and readiness level appear in the text line at the bottom of the screen. If a unit is not shattered, you can give it orders to change mode or move (north, south, east, and west—the game uses an invisible square grid with no diagonal movement or attacks permitted). You can normally only "see" enemy units that are in contact with your troops, but if the weather clears, Allied air power provides a complete view of the board. On the Mac version, you can zoom in to a more detailed view, where the size of the unit symbols indicates their relative strength, but memory restrictions kept this feature out of the MS-DOS version.

Patton Strikes Back is a huge game. The MS-DOS version takes up over 3MB of disk space, and the Mac color version needs 5MB. The massive storage requirement stems, in part, from the game's "newsreels"—small animations digitized from WWII documentary film that pop up whenever a significant event occurs in the game. When you make an airstrike, for example, you see footage of a dive bomber. You can terminate a newsreel with a mouse click, or turn them off entirely. Anecdotes drawn from an extensive "History Book" pop up during the game, or you can simply browse through them offline. You can also request advice—a GI will pop up in a window to offer suggested actions.

I was disappointed by the sparse documentation—most previous Brøderbund historical games had well-researched, lavishly illustrated manuals. I would have liked some references or a bibliography. The only other criticism I would offer is the display—the summer green color scheme fails to convey the feel of a snow-covered battlefield, and the lack of unit ID on the symbols can be confusing. Patton Strikes Back sets a new standard of excellence for military history games. The list price seems high, but you get some value for the money—something distressingly rare in entertainment software these days. ■

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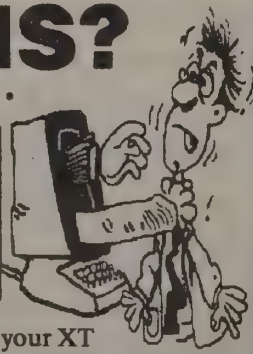
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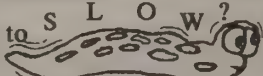
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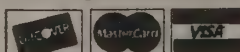


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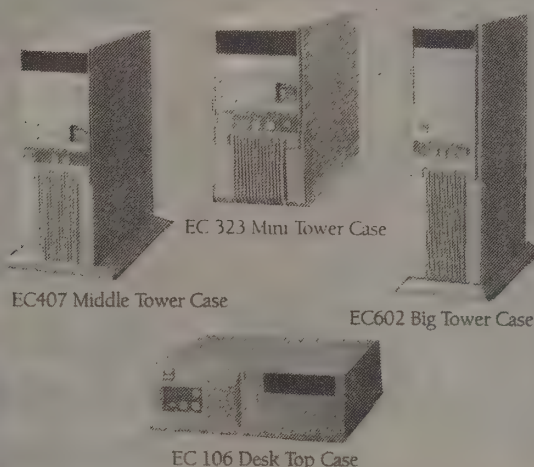
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Continued from page 24

Computer Of The Month

AT&T Safari Notebook



People often ask me which portable is best and I always hedge my bets in giving an answer. In fact, these days all of the portables are pretty good and they all do the job well. But, if price is no object, there now seems to be a clear winner: the AT&T Safari Notebook. The new model comes with an 80MB hard disk, a 3.5" 1.44MB floppy drive, a 2400/9600 baud modem/fax, an incredible amount of software (including Windows 3.0, MS-DOS 4.01, and communications software), a mouse, and finally, a carrying case.

The Safari is one of the most beautifully designed notebook computers I've used. It measures 12" x 9.5" x 1.8" and weighs 7.3lbs., including two rechargeable NiCad batteries and an AC adapter that also recharges the batteries. It is powered by a 20MHz, 80386SX processor with 4MB of RAM standard, expandable to 8MB.

The 10" LCD screen displays crisp, clear black images on a white background and differentiates thirty-two shades of gray. If you need color, you can connect a VGA or super VGA color monitor to the Safari through the port on the back.

The 82-key keyboard is designed with the keys far enough apart for fast touch typing. Like most of the best-designed keyboards these days, there are separate PgUp, PgDn, Home, and End keys. If you prefer your own keyboard or a numeric keypad, it can be attached through the port normally used for the mouse. You can still connect the mouse, which comes standard, through the serial port.

The battery and power management features of the Safari are excellent. Two batteries are included and can be installed simultaneously. Fortunately, they are light enough so that the machine does not become too heavy when they are both installed. Anyhow, the batteries will last from between four and six hours depending upon your use and the level of power management you select. The most extreme setting for power management gives you a longer running time, but

will not let you use Windows. However, even the shorter four-hour time span is longer than most competing models offer.

This very beautiful machine is designed not only for your needs today, but also for tomorrow's. As we might expect in a portable computer from a telephone company, this unit features strong communication capabilities. In addition to the fax/modem software mentioned above, there is also a program called Mail that allows you to send and receive electronic mail as an AT&T EasyLink Services subscriber. A free introductory offer to new owners allows them to establish an account and try out the service. You access this email service through a toll-free number.

EasyLink is worthy of its own article, but it is appropriate here to mention that the capabilities of this new service could easily become a standard in the future. A standalone pager designed to accept messages alerts you to new messages and lets you either read it out or download to the Safari Notebook. A cellular module that will allow EasyLink's paging services to connect directly to the computer will be available in the near future.

This is a really beautiful machine that not only works for today, but is designed for tomorrow. As we might expect in a portable computer from a telephone company, this unit features strong communication capabilities. In addition to the fax/modem, there is also a program called Mail that allows you to send and receive electronic mail if you are a subscriber to AT&T's EasyLink Services.

Safari users can also access close to 850 database services through EasyLink: these include financial services and investment programs, as well as a wide range of other information databases that are helpful to traveling professionals.

In addition to its outstanding design and capabilities, the documentation is simple and straightforward. Not to be overlooked, there is a Tour Guide tutorial that comes up when you first turn on the machine. After walking you through the hardware and software it ends by asking if you would like the computer to open with a DOS prompt or inside Windows. The autoexec.bat file is automatically reconfigured to reflect your choice.

Check this machine out even if it appears to be out of your price range. A 40MB version of the Safari Notebook, minus some of the more advanced communications features, is also available for \$4199. ■

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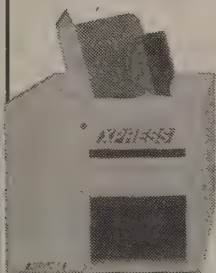
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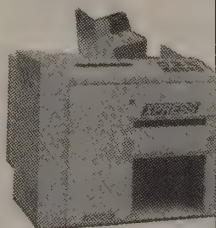
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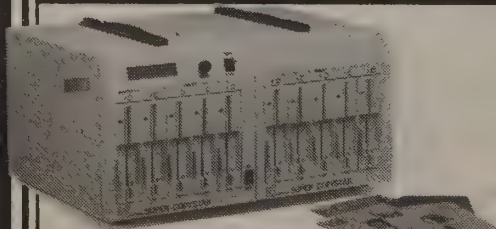


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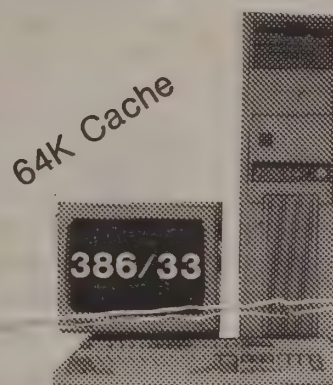
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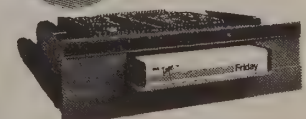
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Multimedia Titling

Mac Meets Iris

BY TONY
REVEAUX

As computer visualization and multimedia applications become more widespread, the machines and software are reaching a wider range of users. While multimedia visualization is still a patchwork quilt of conflicting options, standards are beginning to emerge in the areas where the technology is crucial: CAD/CAM/CAE, chemistry, geosciences, medicine, graphics, publishing, education, training, simulation, videographics, sales, presentations, legal evidentiary, and more. The media to do these jobs—text, audio, graphics, animated graphics, and full-motion video—are especially suited to more powerful computers.

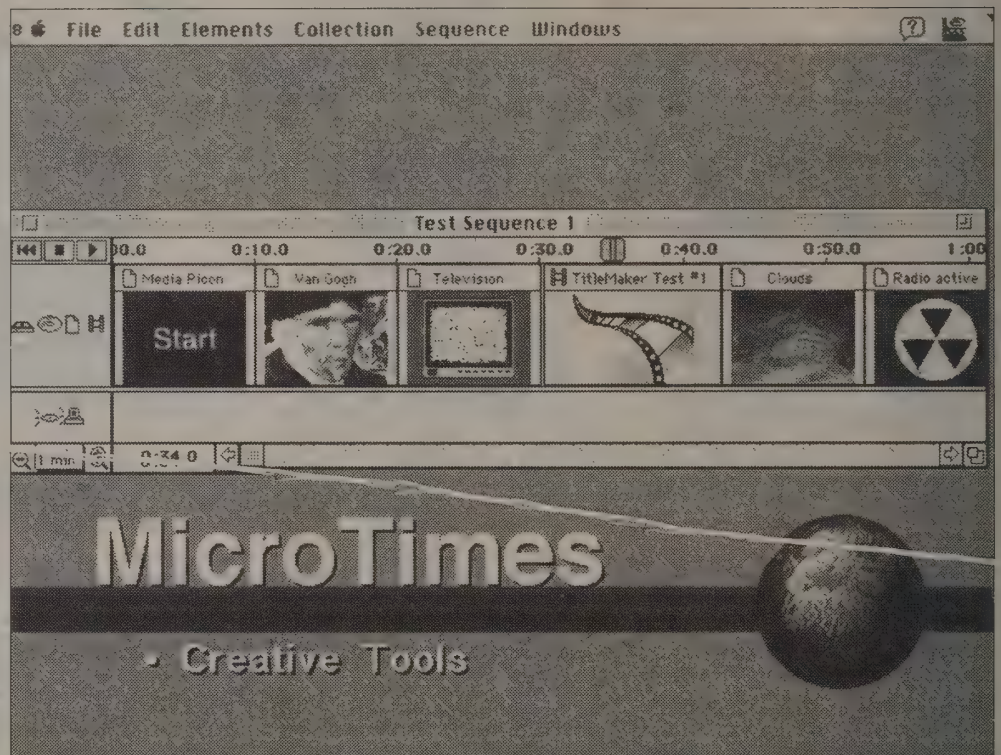
Perhaps when the viewers are just your coworkers in the lab, ASCII characters may be acceptable, but as multimedia documents are being used to communicate to architects, lawyers, doctors, investors, and broadcast audiences, there's a need for versatile and professional-looking text, labeling, and titles. Two new packages, one for Silicon Graphics Iris machines and one for Macintosh, address this need. Xaos Tools' nTitle provides broadcast quality text creation, compositing, and animation; MacroMind-Paracomp's TitleMaker, a module for its MediaMaker product, fills in the video titling slot in the company's product line.

nTITLE

Graphics-dedicated workstations, most based on UNIX, are offering their 2-D and 3-D capabilities at lower and lower prices. One example is the new 8-bit color 3-D Iris Indigo from Silicon Graphics, Inc., which provides a ready-to-go personal workstation for about \$10,000.

While the UNIX arena is slowly getting more user-friendly, there isn't nearly the selection of off-the-shelf software for multimedia visualization for workstations as there is for Macintosh. Explorer, bundled with the SGI Iris, is a distributed development program that may not be a GUI like the Mac's, but it is an icon-based programming environment that allows you to drag and drop data-processing modules and tie them together to create visualization applications.

nTitle is the first of a promising new generation of visualization software tools that take advantage of the power of SGI Iris worksta-



A TitleMaker template is represented by an icon in the MediaMaker Collection, or continuity strip, above.

tions. San Francisco-based Xaos, Inc. is a high-end computer animation studio which produces film and television graphics and effects, such as the logo for "Liquid TV" and effects for *Lawnmower Man*, the New Line Cinema release based on a Stephen King story. nTitle will even be used in the Silicon Graphics collaboration with the George Coates Performance Works San Francisco presentation of the 3-D theatrical show "Invisible Site."

In the process of meeting the intense demands of these projects, Michael Tolson, principal scientist, developed the software technology known as "message passing," a very portable and extensible articulation of object orientation which Xaos has configured into a robust toolkit, allowing modular access to functional "building blocks" in the different UNIX layers. nTitle runs under IRIX 3.3.1 or later OSes, and there are Indigo and 4-D versions (IRIX 4.) as well.

The design of nTitle's interface on this object-oriented toolkit was intended to remain comfortably familiar for the UNIX workstation user, and enhanced by the model of the easy-to-use graphic user interface of the Macintosh, yet go beyond the Mac's limitations. For instance, when you move the cursor around on the screen, those objects that are active become brighter when the pointer touches



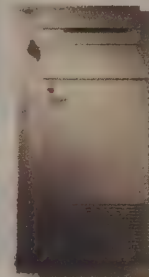
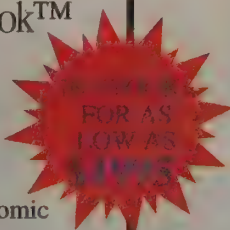
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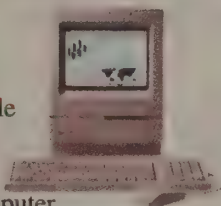


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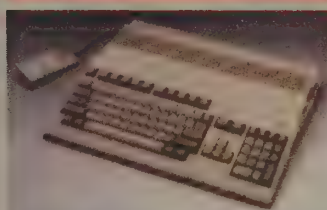
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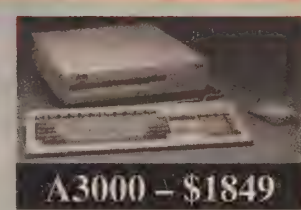


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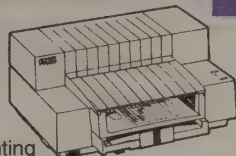


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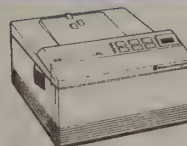
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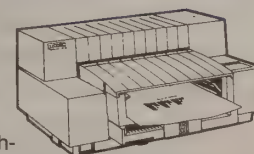
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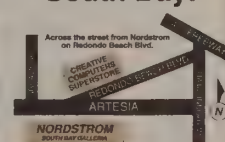
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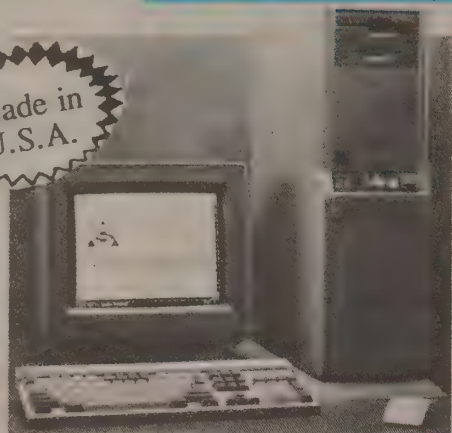
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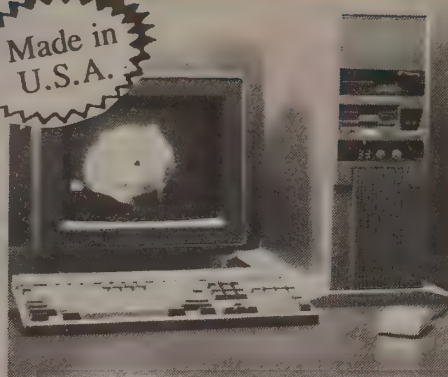
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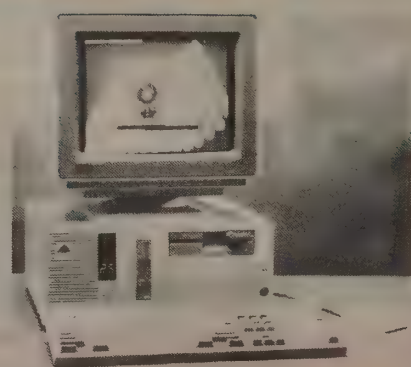
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them. An unmet need in Macintosh multimedia is to see the cursor and/or the object indicate when active areas are encountered within the desktop environment.

In the View Tool window, instead of scrolling arrows at the corners of the window as in the Mac and NeXT, a scroll slider is on the center left, and a pan—or horizontal scroll—is on the center of the bottom frame. Each of these sliders has zoom in and out buttons on either side of its bar. Zoom buttons are also available at the lower left corner. The View Tool is thus configured as a paradigm of the viewfinder of a video camera. As you create, preview, and review documents, you are moving the “camera view” around.

The View Tool is a fast, 12-bit preview mode window. There is full interactive control over the font, color size, scaling, kerning, and formatting of WYSIWYG text, and you can select characters or blocks of text independently. Text styles include solid color, outline, transparent, glow, drop shadow, extrude, and 3-D bevel. The Color Gradient Tool offers a sophisticated four-point gradient control. nTitle comes bundled with thirty Letraset fonts, or PostScript type 1 fonts can be converted. nTitle can output to slide, transparency, and print as well. For creating animations, you can employ the spline-based wireframe mode for speed, trying out effects such as stretch and squash, rotations, fly-bys, zooming, and stock routines such as scrolling, paging, and crawling. You can do this in real time, frame-by-frame, or by stepping through keyframes. The Image Tool gives you control of all kinds of still and moving images, including live video, for fills, backgrounds, and texture maps.

To check on how the full-resolution final output might look after it has been rendered, the transparencies set, the characters aliased, and effects completed, you click on the Snapshot Button. In this reduced thumbnail area the rendering and aliasing take only a few seconds to display the frame in the snapshot window. You can change the interface colors preference through the Swatch Tool.

While personal enrichment may be justification enough to want to have different colors here, it can also be functional to better define the screen image by choosing a contrasting color. For the Macintosh desktop, Dubl-Click Software's ClickChange utility can give you that kind of control.

In the field, SGI-based nTitle is serving as a cross-platform gateway as well as an electronic studio easel. Documents created on sources such as high-end Macs are imported into nTitle, modified or just formatted, and then exported in one of the many formats: Silicon Graphics, Targa, TDI, TIFF, SoftImage, and Abekas Disk Image (YUV). nTitle can address 3-D systems including Wavefront, Alias, SoftImage, and TDI. You can import and export moving images or texture maps via V-Lan/Video Framer or direct to Abekas.

The advantage of a program like nTitle from a workstation is the uncompromising level of output quality. It can meet the specs for 1" network broadcast and HDTV. nTitle 2.0, available soon with an upgrade fee of \$295, adds full 3-D animation and the ability to import scanned images. Future releases in the Xaos Tools line will include an “easy-to-use” animation program.

TITLEMAKER ON THE MAC

Macromind TitleMaker, a collection of configurable templates for animated titles and credits, is strictly an accessory for MediaMaker, Macromind/Paracomp's popular graphic continuity program. Used for assembling and synchronizing video, CD-Audio with Macintosh graphics, sound, and animation, MediaMaker is dedicated to final output on videotape. MacroMind Director has won its spurs as much for its presentation text manipulation as it has for its graphic anima-

tion, and most of the MediaMaker finished products have tended to have titles and credits authored in Director.

TitleMaker is not a standalone presentation program; it is really a module of MediaMaker, and serves as a prefabricated, built-in text shop for its constructions. It comes with over 150 customizable templates that allow you to type in your own TrueType text and to import graphic elements such as your company's logo or clip art to replace the key art in the templates. There are templates with a wiping bar and an animated element such as a spinning globe, schussing skier, or flying airliner. Other “families” of templates feature animated graphics describing a variety of screen directions and transitions, and others have credit lines. You can't edit the structures of the templates in TitleMaker, but you can move elements around and add more when you bring the document within the MediaMaker workspace.

While it may be tempting to want to use these animated titles over files from multimedia background collections such as Artbeats and Wraptures, they will—as PICT files—add too much memory overhead to the TitleMaker file and slow down or stop the action. TitleMaker is meant to be superimposed over video, where that element is treated as a separate channel, without competing with the template.

SGI PLAYER

In another move for more mutually enriching cross-platform communication, Macromind-Paracomp's SGI Player allows Macintosh-based MacroMind Director documents to be played on a Silicon Graphics workstation. The SGI Player package includes software, cables, and a CD-ROM. It is not intended as an end-user product, but rather for those who are authoring and distributing multimedia documents. It can also allow for the full measure of interactivity allowed in Director documents. The only things that will not go across to the SGI are those which talk directly to the Macintosh interface, e.g. Lingo commands like “Open DA”—the Iris doesn't have any desk accessories to be opened. At this writing, it still needs to be able to slow down the speed rate and lock sounds to the animation, but Macromind-Paracomp vows to keep working for full compatibility and interoperability.

To run an interactive Director document like Reactor's CD-ROM-based Spaceship Warlock, you must copy it all onto the host hard disk of the SGI machine, which would also need the SGI Player or an SGI formatted Projector player. If you are a single SGI user and want to open and play Macromind-Paracomp documents, you'll need an SGI Player. If you want to network and/or distribute copies of the document, then you just make a distributable Projector—which SGI Player allows and licenses you to do. The file conversion occurs with the Gaffer, a utility within Macromind Director. The Gaffer turns the document into a raw format which can be reinterpreted by the Player—either SGI Player or Windows Player for PCs—to be accepted to that particular platform.

Director movies may be integrated as modules into some documents authored on the Iris. ShowCase, the resident desktop program management utility bundled with every SGI, can help with this integration. And MacroMind Director documents are often such a chowder of sources—there may be elements of MediaMaker, Photoshop, Swivel 3D, Magic, or more—that Director can gateway many other Macintosh programs to the SGI. With the advent of Apple's QuickTime, there will be a great deal of motion traffic from Mac to SGI. TitleMaker should be able to export QuickTime files, and by entitling QuickTime movies—rather than as any competitor to nTitle—TitleMaker will be a useful tool in the Indigo world. The winner here is communicative visualization. ■

RESOURCES:

nTitle, \$1495

Xaos Tools, Inc.
600 Townsend,
Suite 271E
San Francisco, CA
94103
(415)558-9831

TitleMaker, \$149

SGI Player, \$1200

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MacroMind-Paracomp
600 Townsend,
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94103
(415)626-0585

A Success Story

New Horizons Stands Out In Sluggish Software Market

BY MATTHEW LEEDS

There are few success stories in the Amiga software business. It's a tough market. The bulk of the Amiga's success has been either in games or video products. It's tough to produce good quality software for business and home use and grow a successful business these days, but one of the standouts is New Horizons Software of Austin, Texas.

NEW HORIZONS FINDS A NEED AND FILLS IT

New Horizons started a long time ago with its first product for the Amiga—Flow, an outline processor. This was a pretty long stretch, as this type of product generally sells far better to business than in the home. It sold well enough for New Horizons to continue making Amiga software, though, and they've continued to improve the product. Its latest release, v3.0, incorporates the cutting edge of Amiga innovation by including an AREXX port, full support for Kickstart 2.0, and a spell checker with fifty thousand-word dictionary.

A M I G A

After Flow came ProWrite, the word processor that combined multiple fonts, color text, and graphics. The latest release of ProWrite, v3.2, includes a one hundred thousand-word spelling checker that can check as you type, multiple columns with snaking or side-by-side text flow, a thesaurus with over three hundred thousand cross references, macros, an AREXX port, mail merge, headers and footers, text wrap around graphics, support for HAM graphics, speaking capability (reads back document contents), auto page numbering, built-in PostScript support, Kickstart 2.0 support, read/write of Pro Page text files with formatting codes, and automatically timed saves.

To support the multiple font capability of ProWrite, New Horizons came out with its own sets of fonts, ProFonts, designed for the printed page—unlike the Amiga's own fonts, which were designed for their appearance on the screen. To make the use of these fonts easier they also released a utility called System Mover, the first intelligent font mover. Since fonts on the Amiga have more than one file associated with them, and do not have icons associated with those files, this made the installation process much simpler.

ProWrite has been a remarkable success, but its full feature set required 1MB of RAM to run. The large number of Amiga 500 owners who only had 512K of RAM were unable to take advantage of ProWrite's power. New Horizons found a way to remove some of the features from ProWrite while still leaving most of the functionality and user friendliness.

The result was QuickWrite. It retained the text with multiple styles and color capability, the mail merge and AREXX port, the Pro Page compatibility, the auto page numbering, and many other features. The spelling checker was downsized to fifty thousand words and the thesaurus disappeared, as did the PostScript support. QuickWrite offered Amiga 500 users a capable and Amiga-designed word processor at an affordable price.

Not content with covering the writing needs of the Amiga community, New Horizons then set its sights on creating an affordable

structured drawing program. DesignWorks combines a powerful feature set, highly responsive interface, and respectable speed. It offers Bezier curves, an unlimited number of drawing layers, customizable multi color fill patterns, and a text system that lets you use any combination of Amiga fonts, sizes, styles, and colors. IFF images can be imported and exported, and up to ten drawings can be open at the same time. The expected AREXX port is present, as is the printer control, complete with sideways printing. And in concert with the design philosophy of QuickWrite, DesignWorks will run in 512K of

ProWrite has been a remarkable success, but its full feature set required 1MB of RAM, making it unavailable to A500 users. New Horizons found a way to remove some of the features from ProWrite while keeping most of the functionality and user friendliness. The result was QuickWrite.

RAM with support for Kickstart 2.0.

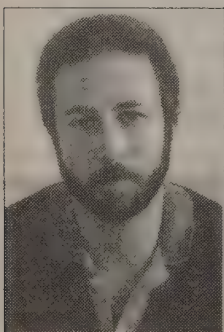
Further proof of New Horizons' success came in the middle of last year with their acquisition of Central Coast Software. The utilities they publish—Quarterback, Quarterback Tools, Dos-2-Dos, and Mac-2-Dos—should all benefit from the creative edge that New Horizons brings to Amiga software.

CDTV'S LACKLUSTER SALES

Less of a success is Commodore's CDTV. At the Consumer Electronics Show in Las Vegas this January, Commodore representatives announced the sales figures for CDTV through the end of 1991. Only five thousand CDTV units were sold in North America, and just thirty thousand were sold overseas. It's difficult to decide if Commodore expected to sell more units in the US, given their limited availability in most of the country most of the year, the very limited advertising support that was provided, and the lackluster software base.

With an installed base of only thirty-five thousand machines, new developers are not likely to be lining up.

Informal announcements from Commodore indicate that all new



Copyright© 1992. All rights reserved. Matthew Leeds has been involved in the high-tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics, and related fields.

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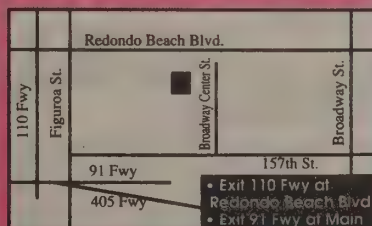
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ASDG
925 Stewart St.
Madison, WI 53713

Amiga's are now shipping with 2.0 ROMs. There may still be some machines with 1.3 ROMs in the distribution pipeline, but Commodore has made the cutover in production. The open question at this point in time is when Commodore will switch the CDTV over to 2.0. Perhaps at the same time that they start shipping the new display adapter that uses the DCTV technology? This can only further fragment the market for CDTV products, as many of the current CDTV titles will not run under 2.0 and have no idea how to function with DCTV.

THE A500 PLUS: SHIPPING, BUT ONLY IN EUROPE

In my AmiExpo report I described Commodore's plans to release a new version of the 500. Called the A500 Plus, it was to include the ECS chip set, 1MB of chip RAM, chip RAM expansion to 2MB via a new A501-type RAM expansion unit, Kickstart 2.0 in ROM, and a built-in clock. This machine is shipping in Europe, but the US sales organization has no plans to introduce it in this country. Once again Commodore's US sales and marketing has shot itself in the foot. Your only hope of seeing (and being able to buy) one of these new machines is to write letters to Commodore asking for them to market the A500 Plus in the US.

CHARITYWARE FROM ASDG

Finally, a tip of the hat to the big-hearted gang at ASDG. They have released an arcade-style game called RingWar as a new form of

It's difficult to decide if Commodore expected to sell more CDTV units in the US, given limited availability, very limited advertising support, and the lackluster software base. With an installed base of only thirty-five thousand machines, new developers are not likely to be lining up.

shareware, called charityware. Instead of sending a voluntary donation to the author of the program, ASDG asks that you send a donation to either the American Cancer Society, the Muscular Dystrophy Association, or the American Red Cross. The program will be available on electronic bulletin boards and other freely redistributable software distribution channels. ■

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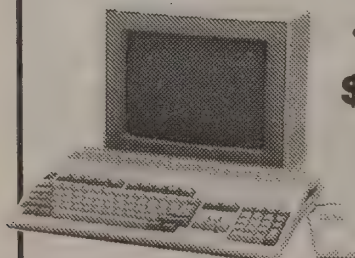
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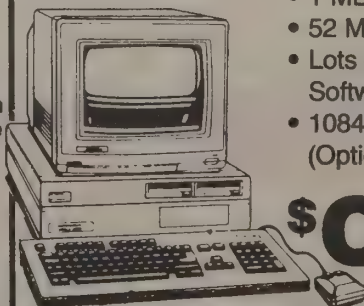
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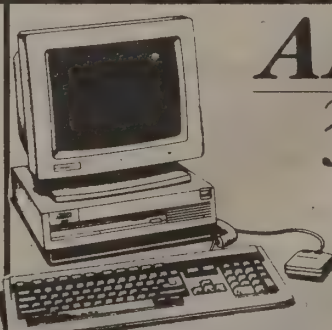
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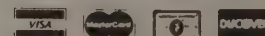
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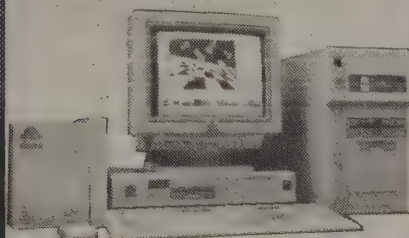
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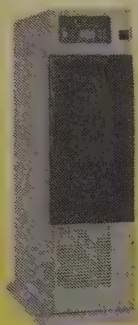
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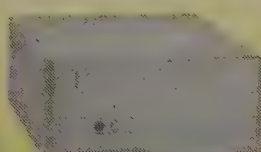
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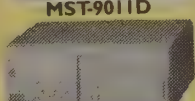
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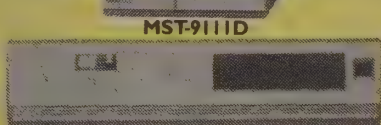
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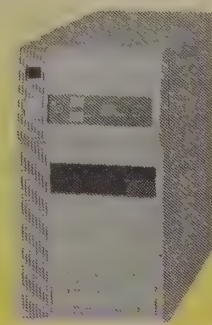
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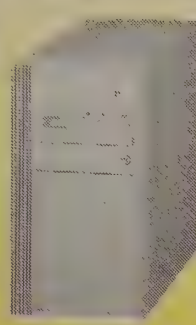
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Calendar Of Events

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February 1-29 Intro To WordPerfect 5.1 Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

February 2 Computer Show. Sequoia Conference Center, Buena Park. Computer Marketplace. Call: 1-800-800-5600.

February 2 Computer Show & Sale. Glendale Civic Aud. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

February 3-4 Intro To SCO System V Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

FEBRUARY 22-23

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ing Center. Call: (714)556-1220.

February 4-6 Buscon '92 West Conference & Expo. Long Beach. CMC Call: (203)852-0500.

February 4-7 Hands-on PC Configuration & Troubleshooting Course. San Diego. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

February 5 Moving Up To WordPerfect For Windows Class. Burbank. Unique Learning Centers. Call: (818)843-8119.

February 6-7 Desktop Publishing With PageMaker Class. Los Angeles. UCLA Extension. Call: (310)206-1422.

February 8 Computer Show. SDSU Aztec Center, San Diego. Computer Marketplace. Call: 1-800-800-5600.

February 8 Computer Show & Sale. Anaheim Stadium. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

February 8-March 17 Advanced Lotus 1-2-3 Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

Call: (818)885-2644.

February 8-March 24 Quantel Paintbox Workshop. Los Angeles. UCLA Extension. Call: (310)206-1422.

February 10-12 14th Annual Conference On Computer Graphics '92. Walt Disney World, FL. Frost & Sullivan. Call: (212)233-1080.

February 11-13 NetWorld '92. Boston. Bruno Blenheim, Inc. Call: 1-800-829-3976.

February 12-14 Novell 2.2 System Manager Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

February 13 WordPerfect 5.1-Tables, Macros & Mergers Class. Burbank. Unique Learning Centers. Call: (818)843-8119.

February 14-17 AmiEXPO West Coast 1992. Long Beach. *AmigaWorld* Magazine. Call: 1-800-32-AMIGA.

February 15 Computer Show & Sale. CSUN, North Campus. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

February 16 Computer Show & Sale. Orange County Fairgrounds. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

February 20-21 LAN Manager Basics Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

February 21 Windows Class. Burbank. Unique Learning Centers. Call: (818)843-8119.

February 22-23 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

February 23-28 Software Development '92 Conference & Expo. Santa Clara. Software Development Shows. Call: (415)905-2741.

February 24 cc:Mail Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

February 27 Protecting Your Business Lifeline: Information Security In The '90s Seminar. Los Angeles. CSI. Call: (415)905-2626.

February 27-28 Media '92-The International Expo And Conference For Multimedia Technology And Products. Los Angeles. Mitch Hall Associates. Call: (617)361-1031.

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New Horizons Computer Learning Center has introduced three new NeXT courses: Beginning, Intermediate, and Advanced FrameMaker for NeXT. Other NeXT courses include Introduction to Interpersonal Computing with NeXT, Improv 1.0, and WordPerfect on the NeXT. They also offer courses for PC, Macintosh, SUN, UNIX, and Novell environments. Contact: New Horizons Computer Learning Center, 1231 E. Dyer Rd., Suite 140, Santa Ana, CA 92705-5605. (714)556-1220.

February 29 Computer Show & Sale. CSU Northridge, North Campus. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

MARCH

March 1 Computer Show & Sale. Glendale Civic Aud. Computer Show & Sale. Call: 1-800-533-7220. BBS: (415)464-6408.

March 2-3 Intro To SCO System V Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

March 2-4 Networking Technologies Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

March 3-6 Intro To Datacomm And Networks Course. San Diego. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

March 4 Intro To LANs Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

March 7-21 Intro To PageMaker 4.0 For The Macintosh Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

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POMONA — L.A. COUNTY FAIRGROUNDS (FAIRPLEX)
Exit Highway 10 at Ganesha/Fairplex Drive. Go North to McKinley and turn right. Then turn left on White Avenue to Gate 14.

BUENA PARK — SEQUOIA CONFERENCE CNTR.
Take the Beach Blvd. Exit off the 91 Freeway and go 1 block North to 7530 Orangethorpe.

LONG BEACH — CONVENTION CENTER
From L.A. take Long Beach Freeway (710) So. to Linden, left on Linden to the Convention Center.

RESEDA — SHERMAN SQUARE ENTERTAINMENT CNTR.
From 101 Freeway: take the Reseda off ramp. Turn left (if travelling E.) on to Reseda Blvd. to Sherman Way, turn right, one block, to Canby Street. 18430 Sherman Way.

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March 15, 1992 SUNDAY

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March 21, 1992 SATURDAY

S.D.S.U. Aztec Center, San Diego

April 4, 1992 SATURDAY

L.A. Fairgrounds (Fairplex), Pomona

April 5, 1992 SUNDAY

Sequoia Conference Center, Buena Park

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May 30, 1992 SATURDAY

S.D.S.U. Aztec Center, San Diego

June 6, 1992 SATURDAY

L.A. Fairgrounds (Fairplex), Pomona

RESOURCES

Calendar Of Events continued

tinuing Education. Call: (818)885-2644.

March 9-11 Novell 2.2 System Manager Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

March 9-12 CAD & Engineering Workstations '92 And Business Graphics '92 Conference & Exposition. Anaheim. NCGA. Call: 1-800-255-NCGA.

March 10-11 4th International Conference On Strategic Software Systems: Visions Of The Year 2000. Alabama. Univ. of Alabama in Huntsville. Call: 1-800-448-4031.

March 11-13 Intro To Quark Xpress Class. Los Angeles. UCLA Extension. Call: (310)206-1422.

March 12-April 9 UNIX: Computer Wave Of The Future Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

March 13 Color Publishing Revolution Seminar. Anaheim. Color Publishing Magazine. Call: (508)392-2187.

March 14 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

March 14 Microsoft Windows 3.0 Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

March 14-April 11 Advanced WordPerfect 5.1 Course. CSU, Northridge. Continuing Education. Call: (818)885-2644.

March 15 Computer Show. Sherman Enter-

tainment Center, Reseda. Computer Marketplace. Call: 1-800-800-5600.

March 16-20 SCO UNIX System V/386 Administration Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

March 17-20 Hands-on PC Configuration & Troubleshooting Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-421-8166.

March 18-20 The Second Conference On Computers, Freedom, And Privacy. Washington, DC. ACM. Call: (202)994-7238.

March 21 Computer Show. SDSU Aztec Center, San Diego. Computer Marketplace. Call: 1-800-800-5600.

March 23-24 Q&A: Database/Word Processing Software Workshop. Los Angeles. Symantec Training Group. Call: (415)898-1919.

March 24-27 Intro To Datacomm And Networks Course. Los Angeles. Learning Group International. Call: Kimberly Sisson, 1-800-

Continued

FEBRUARY 11

PETER NORTON AT THE L.A. COMPUTER SOCIETY

Los Angeles

The Los Angeles Computer Society meeting will be devoted to Peter Norton, developer of the Norton Utilities. He will present new products, offer insights into where the software industry may be headed in 1992, and answer all of your questions. Everyone is welcome. Meetings are free, at the Culver City High School, Robert Frost Auditorium, 7:00 pm. For more information, call: (213)473-6668.

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Calendar Of Events continued

421-8166.

March 25-27 Time Line: Project Manager Software Workshop.
Los Angeles. Symantec Training Group. Call: (415)898-1919.

APRIL

April 4 Computer Show. L.A. Fairgrounds, Pomona. Computer Marketplace. Call: 1-800-800-5600.

April 5 Computer Show. Sequoia Conference Center, Buena Park. Computer Marketplace. Call: 1-800-800-5600.

April 6-7 LAN Manager Basics Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 7 Novell 2.15 Update Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 12-15 Borland International Developers Conference. Monterey. Borland. Call: 1-800-942-8872.

April 14 Intro To LANs Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

April 22-23 NetCom WEST '92—Network Computing Solutions Conference And Expo. Anaheim. Information Development Corp. Call: (301)565-4233.

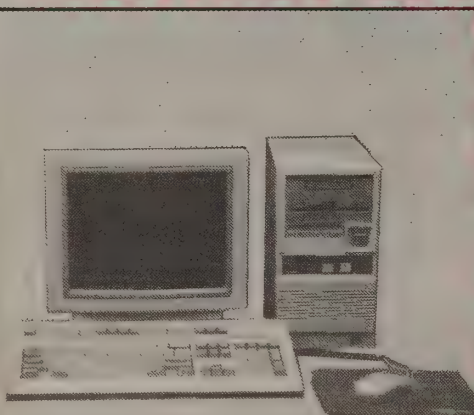
April 27-29 Novell 2.2 System Manager Course. Santa Ana. New Horizons Computer Learning Center. Call: (714)556-1220.

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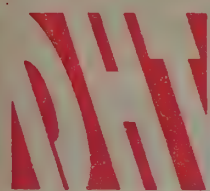
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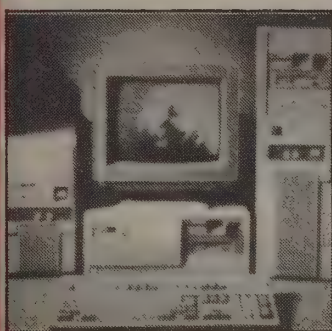
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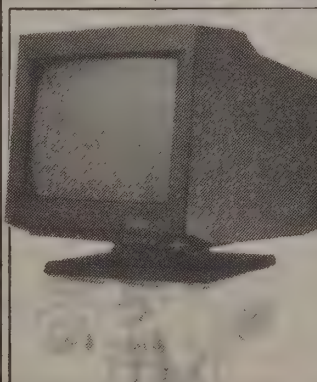
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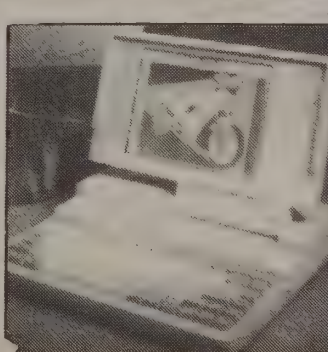


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213

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INFOmania BBS. (213)850-1627. 8-N-1, 24 hrs., 300/1200/2400/9600. CompuCom modem, running RBBS, lots of IBM software. No ratios, Fidonet conferences. Sysop: Frank Keeney. [Exp. #94.]

LAAUGLine. (213)387-1002. 24 hrs., 300/1200/2400. Amiga. Sysop: Thom Irwin. [Exp. #92.]

Lynzie's Motherboard. (213)848-2700. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private

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Out Of Space. (213)962-9428. 300/1200/2400. UFO Information Center. Sysop: Michael Dupre. [Exp. #94.]

Royal Rock BBS. (213)934-2812. 8-N-1, Mon.-Fri., 8 pm-9 am. WWIV. IBM Technical Support & online games. Free, reg required. Sysop: Watcher. [Exp. #92.]

Twelve Steps BBS. (213)654-9160. 8-N-1, 24 hrs., 300/1200/2400/9600. For members of twelve step programs such as AA, SAA, OA, ACA/ALANON, etc. Free. Sysop: Peter Rath. [Exp. #92.]

310

Amiga Artists Club & BBS. (310)590-9949. 8-N-1, 24 hrs., 300/1200/2400. UL/DL, 170MB, art SIGs, Amiga bases, and online games. [Exp. #92.]

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Original Apple Corps BBS. (310)454-4660. 300/1200/2400. Apple II support. Free. Sysop: Sheila Dowst. [Exp. #92.]

the original off-off Broadway bbs. (310)453-7038. 8-N-1, 24 hrs., 300/1200/2400/9600. Non-subscription, text files/messages only. Using MajorBBS software and CompuCom Speedmodem. Sysop: James Gossage. [Exp. #93.]

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619

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BBSing In The Southland

By Mike Markowitz

Beginning this month, we'll spotlight a different local bulletin board each month. If you'd like to suggest a particular board for this monthly profile, send information to BBS Spotlight, MicroTimes, 3470 Buskirk Ave., Pleasant Hill, CA 94523, fax (510)934-3958. Send electronic mail directly to Mike Markowitz at mmarkowi@pepvax.pepperdine.edu on the Internet, or MOUSKOWITZ on America Online.

KBBS

KBBS claims to be LA's busiest computer bulletin board, racking up over twenty-two hundred calls a day on thirty-two lines. With over three thousand active members, the board has local nodes for the 213, 818, and 805 area codes.

Founded three years ago as a hobby, it made the transition to a commercial service in 1990, and now supports a full-time sysop and a part-time helper.

According to Sysop Dale Porter, the typical user is about 33 years old, single, and works in a technical or professional field; 15% are in the entertainment industry and 15% are self-employed. There are quite a few lawyers and physicians, and men outnumber women four to one.

Online socializing is the heart and soul of KBBS. "LA's hottest high-tech meeting place... Make new friends, meet new people." In the electronic village, it seems, services like KBBS can perform the function of matchmaker. The most popular downloads ("by far") are scanned pictures from the member photo album. Members can send in a picture, which is scanned and posted in GIF and PCX formats.

With a background as a computer science major and mainframe programmer, Porter has developed most of his own software. The board runs on a single 486 system using 8MB of RAM and 700MB of hard disk storage (a 1.2GB drive will be added soon).

Beta-testing is underway on an ambitious new BBS software package running under OS/2. This would offer a graphic user interface and the possibility of multiple, simultaneous sessions.

Prospective members can sign up for a one-week free trial, limited to two hours of usage per day with no download privileges. Regular members pay a flat rate of \$19 per month for ninety minutes of usage per day, or \$26 per month for virtually "unlimited" service (which times out after three hours if other members are waiting to connect).

Why would anyone party on a computer? It's safe, somewhat anonymous (just first names, please), and recent behavioral research indicates that people tend to risk more self-disclosure when communicating through the "cool" medium of text, rather than the "hot" medium of voice. It also tends to screen out the semi-literate—but it probably won't be long before we have real-time online spelling and grammar checking software.

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You can update or renew your listings at any time. If yours is missing, send us a new one! Send your listing information to: US Mail should go to: MicroTimes User Group, 3470 Buskirk Ave., Pleasant Hill, CA 94523. Faxes are welcome at (510)934-2417 or (213)467-5486.

Email can be sent to: microx@well.sf.ca.us. Or MCI:MICROTIMES. Starting November 2, 1991, the 213 area code will be split again. If the number for your BBS, User Group, Association, or Calendar listing will change to 310, please notify us—by letter, fax, or email—so our listings will include this information. Thanks.



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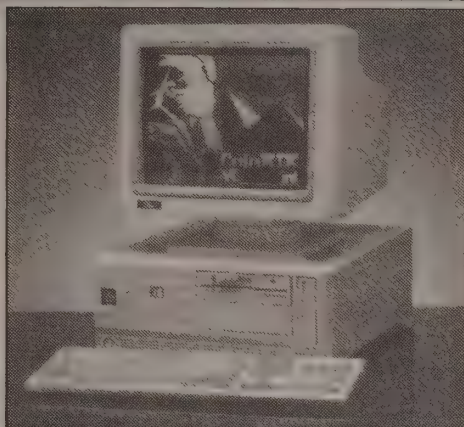
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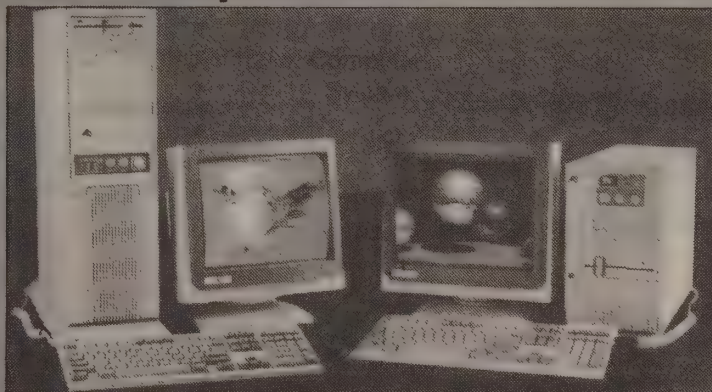
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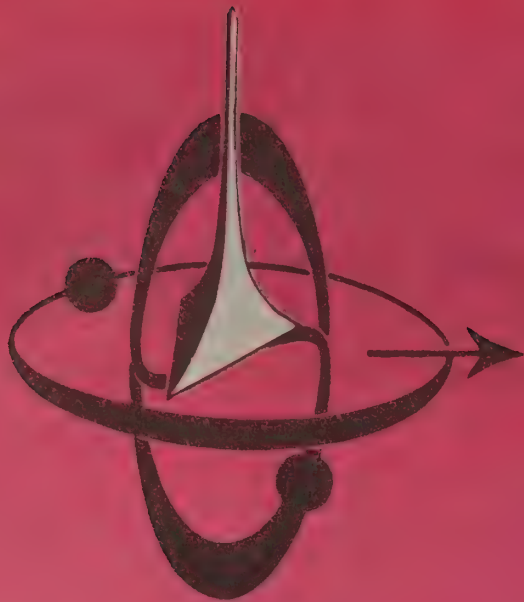
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Lynzie's Motherboard. (714)776-4198. 8-N-1, 24 hrs., 300/1200/2400. 32 lines, multiuser/group & private chats, email, public forums, local social events, over 800MB online. More local numbers available online. Sysop: Lynzie Flynn. [Exp. #93.]

NoHo BBS. (714)848-1506 (2400-14,400), 848-9714 (300-9600). Wildnet & U'ninet echo mail, online games, 1.6GB. Sysop: Brian W. Parker. [Exp. #92.]

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SOCCE BBS. (714)832-8249. 8-N-1, 24 hrs., 300/1200/2400. Public domain & shareware for IBM, Apple & CP/M. Sysop: Brian King. [Exp. #92.]

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ASSOCIATIONS

months, 1-4 pm, LA Midtown Hilton. Annual dues \$20. Write: PO Box 3913, Chatsworth, CA 91313. [Exp. #92.]

Independent Computer Consultants Association, Los Angeles Chapter. Meetings: 1st Thurs., 6:00 pm, Proud Bird Restaurant, 11022

Aviation Blvd., Los Angeles. The LA chapter provides referral services. Call: (213)872-1811. [Exp. #96.]

Independent Computer Consultants Association. Meetings: 1st Thurs., 6:00 pm, McGuire's Restaurant, 8232 DeSoto Ave., Canoga Park. The

LA chapter provides referral services. Call: (213)872-1811. [Exp. #93.]

Orange County Association Of PICK Professionals. Meetings: 3rd Wed. Dinner: Members, \$20; Non-members, \$25. Without reservations add \$5. Call: (714)641-6347. [Exp. #92.]

USER GROUPS

ACCOUNTING

L.A. County Cougar Mountain Accounting Software User Group. Call: (818)709-2762. [Exp. #92.]

AMIGA

LAAUG—Los Angeles Amiga User Group. Meetings: 3rd Wed., 7:30 pm, Veteran's Memorial Auditorium, Overland Ave. & Culver Blvd. Many SIGs, rookies, monthly PD disks. Call: Kip Hammond, (310)390-3010. [Exp. #94.]

APPLE

Original Apple Corps, Apple II User Group. Meetings: 2nd Sun., 1:00 pm, Orange Christian Church, 16561 E. Lincoln, Orange. Call: Ed, (714)779-5405. [Exp. #92.]

AAOC—Atari Association Of Orange County. Meetings: 2nd Sun., 1:00 pm, Orange Christian Church, 16561 E. Lincoln, Orange. Call: Ed, (714)779-5405. [Exp. #92.]

ATESIG—Atari 8-bit SIG. Meetings: 145 Surf Pl., Seal Beach. Cooperative group for Model Railroad applications. Call: (310)430-5433. [Exp. #92.]

RAM Atari ST User Group Of Ventura County. Meetings: 3rd Wed., 7:30 pm, Call: Tim McCoy, (805)389-0059. [Exp. #97.]

South Bay Atari Computer Enthusiasts. Meetings: 2nd Tues., 7:30 pm, Lomita VFW Hall, 1865 W. Lomita Blvd. Active since 1985, novices & all skills welcome. Call: (310)375-4839. [Exp. #97.]

CAD/CAM

Los Angeles Area AutoCAD User Group. Meetings: 4th Wed., 6:30 pm, Burbank Board of Realtors Bldg., 2006 W. Magnolia Blvd., Burbank. Meetings feature tutorials, Q&As, demos, hands-on, BBS, and newsletter. Call: M. Berman, (818)762-9966. [Exp. #96.]

COMMODORE

C128 West Commodore 128

User Group. Meetings: Covina & Santa Monica. Free membership. Large disk library. Call: John, (818)331-1589; Paul, (818)892-3859; BBS (714)598-1755 FidoNet. [Exp. #96.]

C-TUG (Commodore Technical User Group). Meetings: Western Federal Savings and Loan, 2233 N. Tustin Ave, Orange. Speakers, demos, help with any Commodore and Amiga questions. Call: Lou Palush, (714)532-1802. [Exp. #92.]

Commodore Helpers Of Long Beach. Meetings: 2nd Sat., 9:00 am, St. Timothy's Lutheran Church, Woodruff and Arbor in Lakewood. Supports 64/128 models. Call: Tom Hoy, (310)424-0508. [Exp. #94.]

Orange County Commodore Club. Meetings: 4th Sat., 11 am, Fidelity Federal Bank, 19900 Beach Blvd., (Newland Shpg Ctr) Huntington Beach. Call: Mike Moore, (714)668-9715. [Exp. #96.]

The Software Palace User Group. Write: Jeffrey McVeigh, 8978 Magen Ave., West Hills, CA 91304. [Exp. #92.]

South Bay Commodore Users Group. Meetings: 3rd Thurs., 7:00 pm, SEC Redondo Generating Station, 1100 Harbor Dr. (across from King Yacht Harbor). Free and open to all who use or own Commodore computers and to those who would like to receive or exchange information on programs, applications, or hardware. Call: (310)324-8357. [Exp. #97.]

South Orange Commodore Klub. Meetings: 3rd Sat., 9:00 am, Union Federal, 23688 El Toro Rd., El Toro. All Commodore and Amiga users. Call: Don, (714)830-2430. [Exp. #92.]

DESKTOP PUBLISHING

Southern California Ventura Publisher User Group (SC-VPUG). Meetings: Last Tues. and Thurs., 7:00 pm, Tues. in Glendale, Thurs. in Culver City. Product demos, Q&As, library resources. Call: (818)955-5830. [Exp. #92.]

EPSON

SFV & LA Epson QX User Group. Meetings: 3rd Mon., 7:30 pm, The Meeting Place, Fallbrook Mall, Canoga Park. Call: Bill Winter, (818)347-7417. [Exp. #93.]

IBM & COMPATIBLES

4DOS User Group. Starting new. Call for free shareware copy of 4DOS. Call: Richard, (818)788-7283. [Exp. #92.]

Channel Islands PC User Group. Meetings: 2nd Sat., 9:30 am, Camarillo Community Center, 1605 Burnley St., Camarillo. Meetings feature help session, software/hardware demos, and more. \$20/yr. Visitors welcome. Call: Bob, (805)983-4741. [Exp. #93.]

Computer-RAP Club User Group. Meetings: 3rd Tues., 7:00 pm, 730 Pine Ave., #411, Downtown Long Beach. Call: (310)436-8944, between 6:30 pm-9:30 pm. [Exp. #93.]

Greater South Bay PC User Group. Meetings: 2nd Thurs., 7:30 pm, Christ King Lutheran, 2706 W. 182nd St., Torrance. Visitors welcome. Call: (310)542-4996. [Exp. #96.]

Long Beach IBM PC And Compatibles User Group. Meetings: 3rd Wed., 7:00 pm, Los Altos Methodist Church, 5950 E. Willow St., at Woodruff. Novices and experienced welcome. BBS, PD library, newsletter, and SIGs. Call: Jim Wells, (310)439-7114. [Exp. #97.]

Los Angeles Computer Society. Meetings: 2nd Tues., 7:00 pm, Culver City High School Cafeteria. Meetings are free and there are always live presentations and giveaways. Call: (310)473-6668. [Exp. #97.]

NOCCC. Meetings: 1st Sun., Chapman College. Call: (714)998-8080. [Exp. #92.]

Pasadena IBM User Group. Meetings: 3rd Wed., 6:30 pm, Huntington School, 1700 Huntington Dr. Speakers on hardware/software, SIGs, BBS, library, and newsletter. Call: Steve Bass, (818)795-2300. [Exp. #96.]

Continued on page 125

ASSOCIATIONS

American Computer Association. Call: (714)549-3633. Was formed to provide members with service, protection, and advice at the lowest price. [Exp. #92.]

Black Data Processing Assoc., LA Chapter. Meetings:

4th Tues., 6:30 pm, ULTC, 7226 S. Figueroa St., Los Angeles. Call: (310)673-6522 or 1-800-727-BDPA. [Exp. #92.]

CALPA—California American Legion Press Association. 4774 College View Ave., Los

Angeles, 90041. Call: (213)257-7179. Group of Editors of American Legion publications. [Exp. #94.]

FASCAL—Filipino American Society For Computer Activities And Literacy. Meetings: 2nd Sat. of alt.

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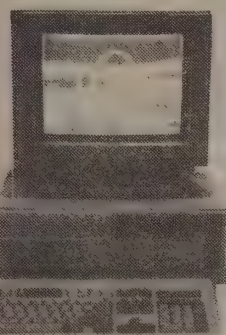
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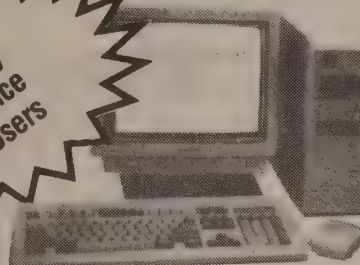
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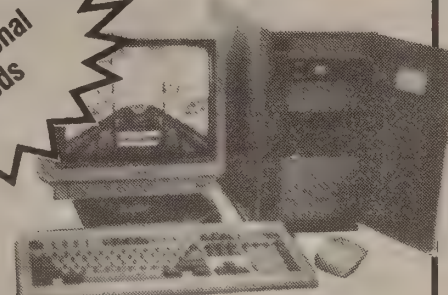
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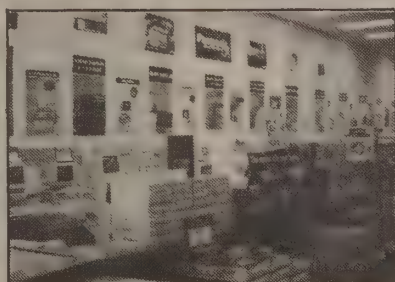
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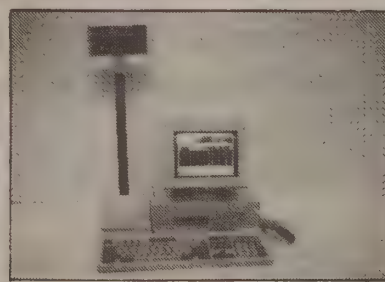
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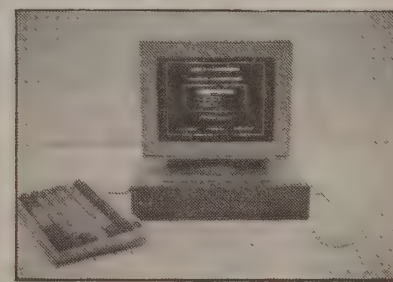
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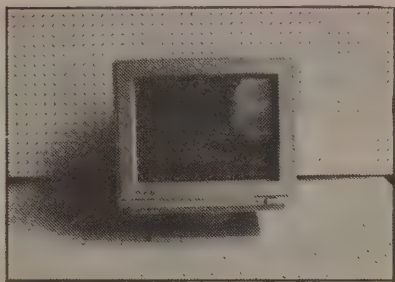
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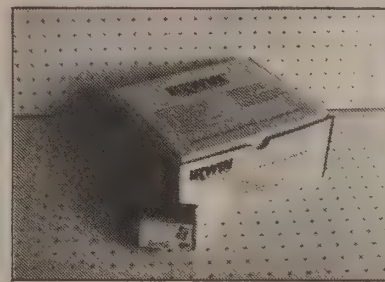
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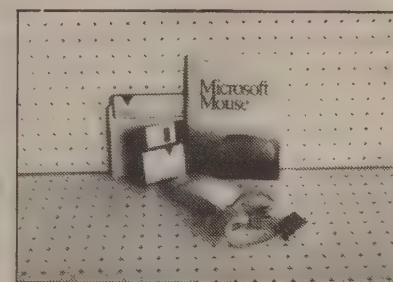
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BUSINESS SOLUTIONS

Continued from page 30

RESOURCES:

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Apple Computer
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be starting a new session or entering an alternate phone number in your script). Still, it works fine, the software is acceptable (though I like PSI's and Global Village's better), and it adds enormously to the value and versatility of the machine. (A number of third-party vendors have already announced faxmodems for the PowerBooks, but few 170 users are likely to be so hardcore as to rip out a bundled modem and put in another unless, say, it also receives faxes...)

•It's an ergonomic dream. The 170's

screen is so sharp and clear it puts other Mac displays to shame. I notice that when I *do* have to switch to another Macintosh, especially in the midst of a PowerBook workday, the CRT-based display, the same one I've used happily for years, is very noticeably blurry. (Also, if you're concerned about ULF radiation, this screen doesn't produce any.)

The keyboard is a full-sized (minus ten-key numeric keypad) Classic keyboard. I would have strongly preferred the Standard keyboard, which the Portable has; it isn't

mushy and the keys are better placed. However, the Classic keyboard has one huge advantage for this type of machine—it's much, much quieter than the Standard or Extended. At one seminar, the person next to me commented that he couldn't hear me typing over the sound of his own papers rattling. (As a matter of fact, the whole machine is much quieter than other Macs.)

Speaking as a confirmed hater of trackballs, I was not at all sure I could get used to the oddly placed one on the PowerBook. Within hours, it had become so transparent I'd forgotten it was there. It's really beautifully designed, symmetrical for right- or left-handed use. The curved thumb-rest cutout under the space bar is an especially nice touch.

Unlike any other portable computer I've ever seen, the PowerBooks feature a table-like handrest (which holds the trackball and two clicker bars at its center). While this may be funny looking, it turns out to be one of the PowerBook's best design features. For one thing, it balances the machine's weight in such a way that it doesn't feel like it's going to fall off your lap. For another, it forces you to type with your hands and wrists in more-or-

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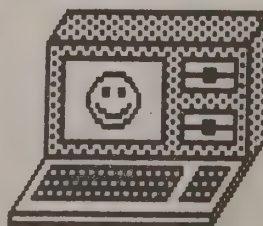


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The trackball is beautifully designed, symmetrical for right- or left-handed use. The curved thumb-rest cutout under the space bar is an especially nice touch.

less approved position for avoiding Carpal Tunnel Syndrome. In seven years of Mac use, I've found intense mousing much more productive of wrist and arm pain than constant typing; while intense trackball use on the PowerBook does tend to stress thumb-linked tendons, it's a big improvement over mousing.

IN SHORT...

Buy one. Despite a little room for improvement, this machine is a triumph of design, offering the full functionality of the sainted SE/30 (and then some) in a convenient portable package. Longtime Mac users are in love with this machine, and well they should be.

Nicely done, Apple. ■

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- ◆ 2 serial / 1 printer ports
- ◆ Paradise chipset S-VGA w/ 512KB
- ◆ 14" SuperVGA 0.28mm 1024 monitor

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33-MHZ 386 VGA

- ◆ 130 MB 15ms IDE hard disk
- ◆ 1.2MB & 1.44MB TEAC floppy drives
- ◆ 4 MB RAM, exp to 32MB on board
- ◆ 64KB cache, exp to 256KB
- ◆ AMI BIOS and Chips & Technology chipset for best compatibility
- ◆ Focus 2001 click keyboard
- ◆ 2 serial / 1 printer ports
- ◆ Paradise chipset S-VGA w/ 512KB
- ◆ 14" SuperVGA 1024 0.28mm monitor

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33-MHZ 486 VGA

- ◆ VEGA 486 system board, made in USA
- ◆ 64KB cache, expandable to 256KB
- ◆ 130 MB 15ms IDE hard disk
- ◆ 1.2MB & 1.44MB TEAC floppy drives
- ◆ 4 MB RAM, exp to 32MB on board
- ◆ surface mounted design
- ◆ Focus 2001 click keyboard
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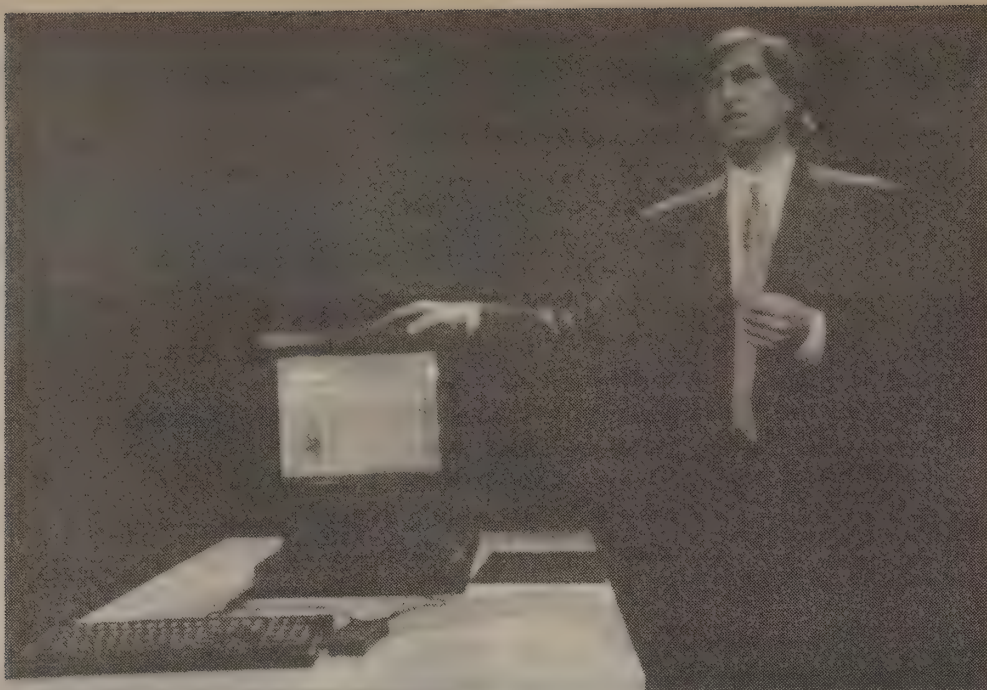
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Continued from page 52

their biggest customers are Chrysler and American Airlines. They bought several hundred of our computers, and we figured they were just using them for productivity until we met the art director down there, who was one of the key people that made the decision to go with NeXT.

He said, "Well, that's one of the things, but that's not why we bought them." We said, "Why did you buy them?" He said, "Well, did you ever see these ads for American Airlines in the newspaper that list all the flights and the prices for the next day?"

"Yeah..."

"Well, there's 150 of those that run every night around the country, and they're all different because of different cities. You know how we

make those? We get onto the SABRE system manually every night, we typeset them all manually. We're writing a custom NeXTstep app that logs onto the SABRE system automatically, grabs the data, typesets it automatically into the app, sends them onto the network around the country, and prints them locally at the local cities."

There's an art director writing this app. This is because of PostScript and because of your database stuff. We used to think about art directors getting competitive advantage by getting a Macintosh and some page layout program. The world's moving beyond that.

So I think we've got to be careful when we say, "Let's not lose traditional multifaceted markets." Those multifaceted markets tomorrow are not what they were yesterday. And that's why we think we are able to give some of them what they need to take the next step.

This is especially true in multimedia, where a lot of people who have never given the Mac much thought are suddenly going to find themselves trying to send video postcards.

Hey, I'll give you an example of multimedia. You know, one of our most multimedia-intensive customers is the Canadian Mounted Police in Toronto. [laughs] They're using NeXT systems to manage their whole police department. Multimedia out the wazoo.

This is another one of these areas where I worry about the maker and the market.

Yeah, I know. [laughs] I know. It's funny, though.

Actually, the Mounted Police don't bother me anything like as much as my recent discovery that the CIA is one of your biggest customers.

I can't comment on that. ■

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USER GROUPS

Continued from page 118

South Orange County Computer Club (SOCCC). Meetings: 3rd Thur., Westminster Community Center. IBM, Apple, CP/M. Vendor presentations, newsletter, etc. Membership: \$12 single; \$14 family. Call: (714)531-0376. [Exp. #92.]

Thousand Oaks Personal Computer Club (TOPCC). Meetings: 4th Thurs., 6:30 pm, Goebel Senior Adult Center, 1385 E. Janss Rd., Thousand Oaks. Call: (805)496-8152. [Exp. #97.]

Valley Computer Club. Meetings: 1st Wed., 7:00 pm, Burbank Board of Realtor's Bldg., 2006 W. Magnolia, Burbank. BBS, PD library, SIGs, newsletter. All welcome. Call: (818)842-3707 or (213)227-9684. [Exp. #96.]

Ventura PC User Group. Meetings: 4th Wed., 7:30 pm, Poinsettia Pavilion, Canada Larga Rm., 3451 Foothill Rd., Ventura. Five year old group, newsletter, public domain/shareware programs, and hotline for members. Call: Ron Poast, (805)644-1227. [Exp. #96.]

VICUG (Valley IBM/Compatibles User Group). Meetings: 4th Fri., 7:00 pm, Security Pacific Bank, 14801 Ventura Blvd., Sherman Oaks. Membership fee \$25/yr or \$3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #93.]

VICUG—DTP (Valley IBM/Compatibles User Group—Desktop Publishing). Meetings: 1st Fri., 7:00 pm, Union Federal Savings Bank, 13330 Ventura Blvd., Sherman Oaks. Membership fee \$25/yr or \$3 at the door. Call: Harry Tischler, (818)997-1470. [Exp. #93.]

The Westside Computer User Group. Meetings: 1st Sat., 6:30 pm, Flakey Jake's

Restaurant, Pico at Sepulveda. Everyone and all types of computers welcome. Call: Dave, (213)857-5800. [Exp. #92.]

KAYPRO

West Los Angeles Kaypro User Group/KAYOS Kaypro User Group. Meetings: 4th Mon. of even months, 6:30 pm, El Segundo. Call: Margot, (310)379-8339. [Exp. #94.]

K-MAN

Southern California KnowledgeMan User Group. Meetings: 1st Wed., 7:00 pm, Honda North America, Bldg. 300, 700 Van Ness Ave., Torrance. Call: (213)662-9910. [Exp. #97.]

MACINTOSH

The American Film Institute Mac User Group (AFIMUG). Meetings: 2nd Mon., Apple Lab, AFI, Hollywood. TV, film, and video. Call: Dave Chadderdon, (213)856-7743. [Exp. #97.]

MacValley User Group. Meetings: 1st Wed., 7:30 pm, Wilkinson Senior Center, 8956 Vanalden, Northridge. Meetings, new product demos, newsletter, PD and shareware software, and more. Membership dues, \$30/yr. Visitors welcome. Call: Bob Campbell, (818)784-8666. [Exp. #96.]

San Gabriel Valley Mac Users Group. Meetings: 1st Thurs., 7:30 pm, Pasadena Central Library Auditorium. Call: (213)684-ICON. [Exp. #97.]

West Orange County Macintosh User Group (WOCMUG). Meetings: last Tues., 7:00 pm, F&M Bank, Rossmoor Shopping Center. Visitors always welcome! Call: (310)493-1240. [Exp. #93.]

Whittier Area Mac User

Group. Meetings: 2nd Sat., 10:00 am, Granada Heights Friends Church, La Mirada. Call: (310)947-2447. [Exp. #97.]

NeXT

Southern California NeXT User Group. Meetings: throughout LA County. Call: Mike Mahoney, (213)985-1550 or Bob Desharnais, (213)343-2056. [Exp. #93.]

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Brea 99'ers User Group. Meetings: 1st Tues. Call: (714)871-3405. [Exp. #92.]

TI/944A Home Computer User Group. Meetings: 2nd Mon., 7:00 pm, Pomona First Federal, 9090 Central Ave., Montclair. Monthly newsletter, demos, and fairware. Call: (714)627-3403. [Exp. #96.]

TI User Group Of Orange County. Meetings: 2nd Mon., 7:30 pm, Fidelity Federal, St. Andrews & Seal Beach Blvd., Seal Beach. Supporting the TI99/4A computer. Call: Stan, (714)892-2818. [Exp. #92.]

THEOS

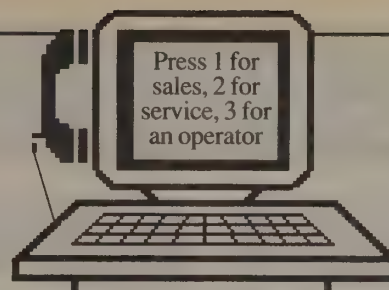
THEOS User Group. Call: Fred Bellemy, (805)965-0265. [Exp. #92.]

UNIX

UNIX User Association Of Southern California. Meetings: 2nd Mon., 7:00 pm, New Horizons Learnings Center, 1231 E. Dyer Rd., Santa Ana. Call: Vince, (714)556-1220, ext. 126. [Exp. #92.]

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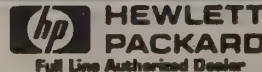
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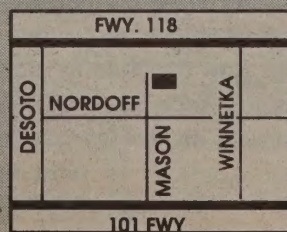
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Technology Advances Have To Mean Something

Don't They?

BY JOHN C.
DVORAK

It's always popular to predict the future of computing. Everybody loves to do it because you can let yourself go with wishful thinking. You can go on and on about how we'll all be using color laptops or automatic typewriters that turn our every word into print. We imagine supercomputer desktop power by the end of the decade. I always like to imagine a credit card with 486 power in every wallet complete with the latest 1/8" 2GB hard disk. Every prediction and dream is a function of the belief that improvements in technology never end.

Technologies do not go on forever improving at the rate which we see computer power increase. But it seems as though this one is slated for a long ride. At some point we have to ask what it really means.

ALTERNATE REALITY

As an exercise, I like to think about what the desktop computer world would be like if things stopped dead at the 8080 or Z-80 microprocessor with slow hard disks and 4K memory chips. Can you imagine if the

continued improvement and artistry in software. Instead of compilers that grow huge inefficient executable files (like today) the target would be more functionality, more efficiency, more power in fewer kilobytes. In fact, the stunted hardware would yield to improved software and differing techniques giving us a desktop computer probably as powerful as the 486 screamers we have today.

Can you imagine the chit-chat if this were the case?

JIM: Hey, John I got my new microcomputer!

JOHN: Wow. What did you get?

JIM: I got the newest IBM Z-80 PC running at 4MHz. It's really cool. It comes with a neat-o 5MB hard disk and 64K!

JOHN: Oh brother! It's 1992. They made it so you can use 128K, where have you been?

JIM: Man, the extra 64K costs a thousand dollars. I couldn't afford it.

JOHN: What a tightwad. What did the whole system cost with the hard disk?

JIM: \$6500. Not a bad deal, huh? I also got the newest version of WordPerfect. They have it so it doesn't do all those slow overlays anymore and runs in 50K of memory.

JOHN: 50K?? What a memory hog!

Even handwriting and voice recognition seem possible in some fake future where the old hardware was still used. There's a trick to it. But it seems unlikely that real-time video and other animation and graphical improvements would ever appear on the desktop if we were stuck in the past with the 8080/Z-80 chips.

SO WHAT GOOD IS IT?

At some point you have to look at the meaning of progress. It's not really for faster spreadsheet recalcs. Who really needs it? Sure, I love the fact that my spell checker on the 486 is instantaneous, but would I throw out the computer if it weren't? I love performance, but when I travel I use a 286 laptop with a little hard disk and I find it all very functional.

But there are things that can't be done with the slow machines, and they include real-time video manipulation, and intense graphics. Bending PostScript characters is nearly impossible to do without a super-fast machine. So we have to assume that the true beneficiaries of better and better performance are at the root of the major trends in desktop computing. In other words, if video and graphics are the only categories that actually benefit from hardware advances, then any future world of computing has to be built around aspects of video and graphics.

It's fine to decry all this graphics nonsense and the trend away from the beloved command line interface. But we have to face reality based on the fact that hardware advances are only accomplishing a few things, and key among them are advances in video and graphics. Anyone who ignores this obviousness does so at their own risk.

Yeah, I know, it means we have to take all this windowing stuff seriously. ■

DVORAK'S LAST COLUMN

desktop computer of 1978 was the same one we were using today, instead of being on the treadmill chasing more and more MIPS and drowning in more and more bloated, sloppily coded applications?

For one thing, I'm sure the computer hobbyist would still be with us. Furthermore, the bulletin board rage would not have bloomed if we were still fighting the 300 baud barrier. People wouldn't be so easily able to exchange files over the phone lines as they are today. Diskette mailers would be hot items. There wouldn't be the fancy networks either. So floppies would still be used in a sneaker-net kind of office for file exchange.

The compute-intensive PostScript would never have evolved the way it did on the new machines, and it's unlikely that the sudden emergence of the type font as a societal commonplace would have happened the way it did. In fact, there is no reason to believe that we wouldn't still be enamored of the Courier type ball on the IBM Selectric. We can assume that laser printers wouldn't be developed and we'd be forever saddled with dot-matrix printers for small computer use. The DECWriter would still be a prestige printer, clanking away in the background.

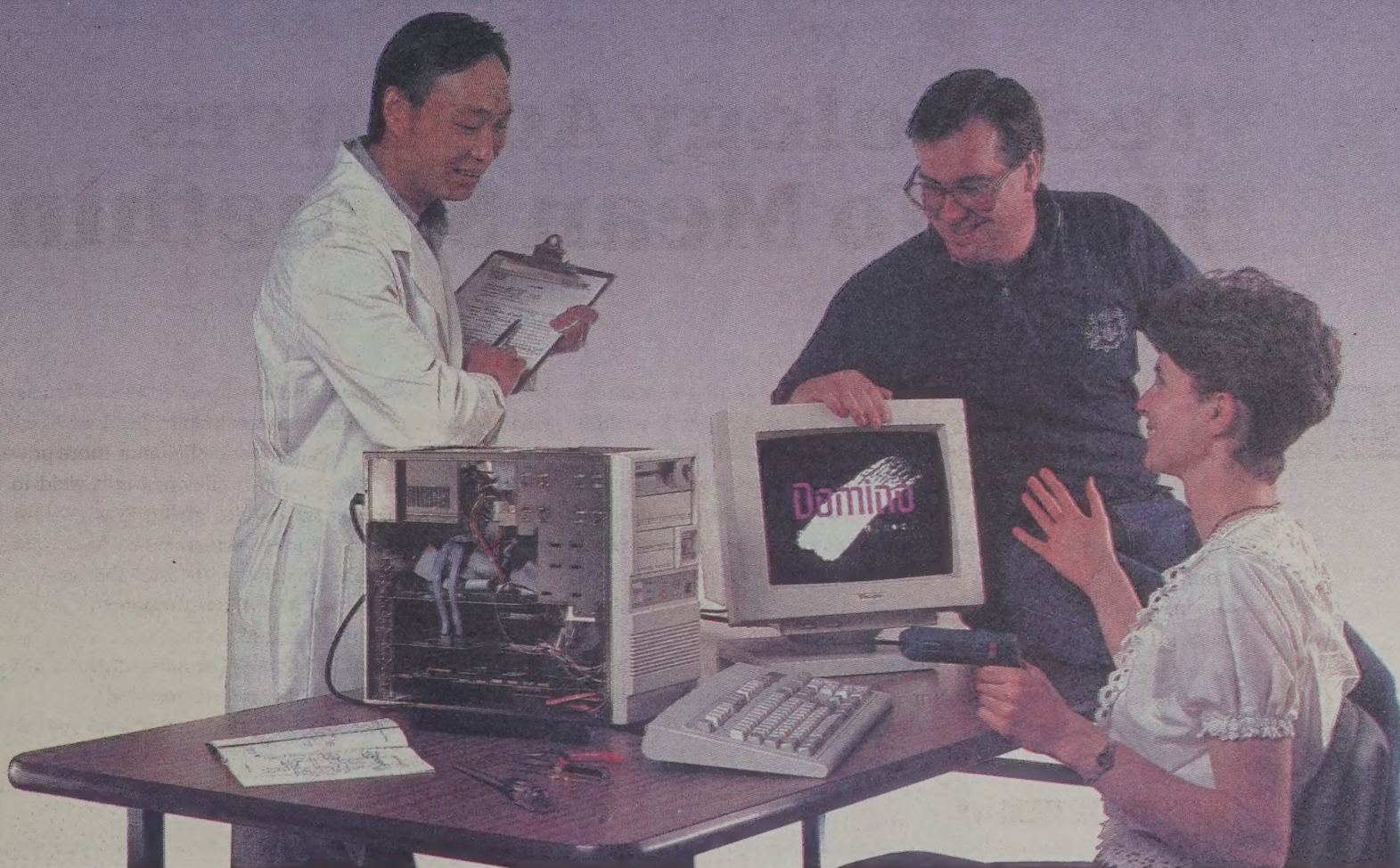
You can compare today's 2.8MB 3 1/2" disk to the 70-170K floppy of 1978; you can compare a then-rare 5MB hard disk to today's 600MB disk. There are a lot of comparisons you can make—and then ask yourself if we're that much better off with all the complications. Is the office that much more automated with the fast new machines and their increased capabilities? How much do we really need on the desktop? Even the software improvements—which are substantial—are hardly necessary for most of the needed functions of an office computer.

One thing I'm sure we'd see in a stagnant hardware scene is a



© 1992 by John C. Dvorak. All rights reserved. John C. Dvorak graduated from the University of California. He is a contributing editor of PC Magazine and MacUser, and is considered by many to epitomize the contrarian view of things—a charge that he vehemently denies. Dvorak's motto is: If you have nothing nice to say, then don't say anything at all.

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COMPUTER SELF SERVICE CENTERS

New QEMM-386 v6.

"It's nothing less than a dream come true"
—Steve Gibson, InfoWorld 8/26/91

Suddenly PC users have a lot of memory managers to choose from. Seems that everyone has figured out what users have been telling us for years: they need every last 'K' of available memory between 640K and 1 megabyte—especially if they're running on a network. Or using TSRs.

Our new QEMM-386 version 6 is the best way to get the most out of memory. It 'pools' all your memory so that it's available in whatever form your programs need—expanded or extended. You don't even need to know the difference. QEMM does it all for you. Instantly. Whereas DOS 5, for example, requires you to figure out what you need, then manually allocate memory and re-boot for every change.

As for the all-important 'conventional' memory area, our new version 6 increases the amount of memory freed-up. Our exclusive 'optimize' feature automatically seeks out TSRs and device drivers and moves them into high memory—the area between 640K and 1 megabyte. All you have to do is type 'optimize'.

#1

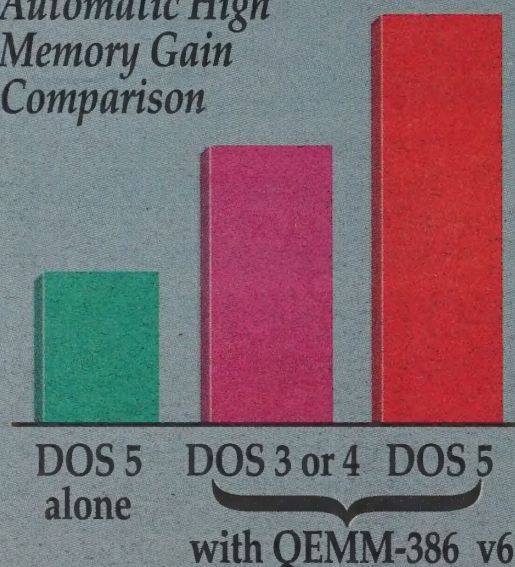
QEMM is the top-selling PC utility.

QEMM-386 v6 finds more high memory than any other memory manager. *Byte Magazine's* tests showed it produced net memory gains of 21K to 132K over DOS 5.0 alone, for instance.

There's no better way to manage your memory.

11 WEEK
ANALYST'S CHOICE

What you can expect
Automatic High Memory Gain Comparison

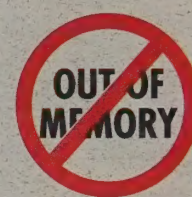


Stealth takes you to network and TSR heaven.

Our breakthrough 'Stealth' technology makes available areas normally taken up by ROM. Areas that QEMM-386 can use to load memory-hogging TSRs and drivers. Big programs can get the memory

they need to run fast and efficiently. And you get to have your TSRs.

Not every PC can benefit from Stealth. But every PC can benefit from 'Squeeze'—our new feature to manage those TSRs that need more memory at start up and less when they're resident. Memory allocation is temporarily increased, then squeezed down after it's needed.



QEMM can use idle video memory to produce a further 96K gain on EGA and VGA systems when running character-based programs.

A priceless \$60 bonus.

QEMM comes with Quarterdeck Manifest, the award-winning analysis program that makes it easy to see what's 'under the hood' of your PC.

Manifest does for memory what PC Tools Deluxe does for disks.



See and understand how your PC works with Manifest.

Benefits for Windows, too.

Whether you're running DOS 3, 4, 5, or Windows, QEMM can improve your 386/486's performance.

That means you may not need a faster CPU. You may not need more RAM. QEMM makes your favorite programs work better by giving them more memory to run in.

QEMM helps you get the most out of the software you own today.

Quarterdeck

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